BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 10- 9- 4- 1- 8- 7 - 6- 3- 5- 2 Firing order : MB 18,3 n Test sheet Edition : 22.04.88 Replaces Test oil : ISO-4113 : 0-45-72-117-144-189-Phasing Combination no. : 0 401 849 741 216-261-288-333 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE10P110A320LS3844 Time to cyl. no. : 10 EP type number : 0 411 819 710 BASIC SETTING Governor Governor design. : RQ300/1050PA187-20 Governer no. : 0 421 801 429 rpm : 750 1st speed Rack travel in mm : 12.50...12.60 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.3...12.5 : 0M 443 Engine 100 s: (12.0...12.7) 1st version kW : 265.0 : 2100 cm3 : 0.4Rated speed Spread TEST BENCH REQUIREMENTS 100 s: (0.8) rpm : 300.0 Test oil 2nd speed inlet temp. OC Rack travel in mm: 8.0...8.3 : 38...42 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3) Overflow valve : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow quantity min. 1/h: 130...150 Degree: -1 rpm : 600 Speed Rack travel in mm : 13.60...14.40 Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 750 Speed : 123.0...125.0 1000 : (120.5...127.5) Del.quantity Test lines : 1 680 750 015 cm3 : 4.00 Spread 1000 : (8.00) Outside diameter x Wall thickness : 6.00x1.50x600 RATED SPEED x Length mm (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ Speed rpm : 600 Rack travel in mm: 13.7 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing:

1st rack travel in: 11.50

rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.9

Testing:

rpm : 200 Speed Minimum rack trave: 8.50 Speed rpm : 300 Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00

rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050 Del.quantity cm3/ : 134.0...138.0 1000 s: (131.0...141.0)

cm3 : 6.00 Spread 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9,00...12.00 Note remarks : 10- 9- 4- 1- 8- 7 - 6- 3- 5- 2 Firing order Test sheet : MB 18,3 o Edition : 05.02.88 Replaces Test oil : ISO-4113 : 0-45-72-117-144-189-216-261-288-333 Phasing Combination no. : 0 401 849 742 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE10P110A320LS3844 Time to cyl. no. : 10 EP type number : 0 411 819 710 BASIC SETTING Governor Governor design.: RQV300..1050PA884-2 Governer no. : 0 421 813 688 rpm : 750 1st speed Rack travel in mm : 12.50...12.60 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.3...12.5 Engine : OM 443 100 s: (12.0...12.7) 1st version kW : 265.0 : 2100 cm3 : 0.4Rated speed Spread TEST BENCH REQUIREMENTS 100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.5...2.1 Test oil inlet temp. °C : 38...42 100 s: (1.2...2.3) Overflow valve : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump Over flow with governor quantity min. 1/h: 130...150 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 300 : 0 681 343 009 travel mm : 1.10...1.40 assembly 2nd speed rpm : 650 travel mm : 5.00...5.40 Opening 3rd speed rpm : 1100 pressure, bar : 172...175 : 8.20...8.60 travel mm 4th speed rpm : 1160 : 9.20...9.80 Test lines : 1 680 750 015 travel mm GUIDE SLEEVE POSITION Outside diameter x Wall thickness Control-lever position : 6.00x1.50x600 Degree: -1 x Length mm

rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 123.0...127.5)

BEGINNING OF DELIVERY Test pressure, bar: 25...27

per values

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

A03

Spread cm3 : 4.00 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 116...120 Testing: 1st rack travel in: 11.50 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 81...89 Testing: rpm : 200 Speed Minimum rack trave: 9.00 rpm : 300 Speed Rack trave: in mm : 6.80...7.00 CONSTANT REGULATION Speed rpm : 300...420 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version : 1050 Speed rpm Del.quantity cm3/: 134.0...138.0 1000 s: (131.0...141.0) cm3 : 6.00 Spread 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1090...1100 Speed STARTING FUEL DELIVERY

rpm : 100

1000 s: (136.0...164.0)

Del.quantity cm3/: 140.0...160.0

Remarks:

:

Speed

Note remarks

: MWM 21,6 a4 Test sheet : 06.04.88 Edition

Replaces

Test oil

: ISO-4113

Combination no. : 0 401 870 091

Injection pump

Pump designation : PE12P12OA52O/5RS428-

EP type number

: 0 411 820 034

Governor

Governor design.

: RSUV300...900P0A320-

Governer no.

: 0 421 829 107

Customer-spec. information

Customer

: MWM

Engine

: TBD 234 V12

1st version kW : 600.0

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1- 2- 9- 10- 5- 6-Firing order

11- 12- 3- 4- 7- 8

: 0-30-60-90-120-150-Phasing

180-210-240-270-300-

330

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 24.9...25.1

100 s: (24.6...25.4)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.0...2.6 100 s: (1.7...2.9) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 249.0...251.0 Del.quantity

1000 : (246.0...254.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 70...78

Testing: 1st rack travel in: 13.50 Speed rpm : 940...950 2nd rack travel in: 4.00 Speed rpm : 965...995

4th rack travel in: 1130 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 29...37 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm : 5.1 Speed rpm : 300

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00

rpm : 320...380 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 14.50...14.60

2nd speed rpm : 450
Rack travel in m: 14.50...14.60
3rd speed rpm : 280
Rack travel in m: 15.70...16.30

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.50

rpm : 940...950 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Remarks:

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF 11,6o15 : 11.03.88 Edition : 12.9.86 Replaces Test oil : ISO-4113 Combination no. : 0 401 876 323 Injection pump Pump designation : PE6P120A320RS415-1 EP type number : 0 411 826 123 Governor Governor design. : RSV250...1100P5A508-: 0 421 833 186 Governer no. Customer-spec. information Customer Engine : DKV 1160 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 650 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 16.7...16.9

100 s: (16.4...17.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8 100 s: (1.2) Spread

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650 Aneroid pressure h: 700

Del.quantity : 167.0...169.0 1000 : (164.0...172.0)

cm3 : 5.00 1000 : (9.00)

RATED SPEED

Spread

1st version Control lever

position degrees: 49...57

Testing:

1st rack travel in: 8.90

Speed rpm : 1135...1145

2nd rack travel in: 4.00

rpm : 1175...1205 Speed

A07

3rd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1370 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.8 Speed rpm : 250 Rack travel in mm : 6.20...6.40 Rack travel in mm : 2.00 : 650...710 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 650 Rack travel in m: 11.20...11.30 2nd speed rpm : 1090 Rack travel in m: 9.90...10.10 3rd speed rpm : 825 Rack travel in m: 10.60...10.80 4th speed rpm : 875 Rack travel in m: 10.30...10.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 700 Pressure : 11.00...11.10 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : -Rack travel in m: 9.80...10.00 2nd pressure hPa : 290 Rack travel in m: 10.70...10.90 3rd pressure hPa : 260 Rack travel in m: 10.30...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 1090 Del.quantity cm3/ : 153.0...157.0

1000 s: (150.0...160.0)

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.90 rpm : 1135...1145 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 320.0...360.0 1000 s: (316.0...364.0) Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 250 Speed Rack travel in mm : 6.20...6.40 Remarks:

Speed

Aneroid pressure h: -

rpm : 600

Del.quantity cm3/: 135.0...137.0 1000 s: (132.0...140.0)

Note remarks

Test sheet : ENA 10,1 f : 25.03.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 332

Injection pump

Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number

Governor

Governor design: : RSV250...1000P1A532

Governer no. : 0 421 833 273

Customer-spec. information Customer : ENASA

Engine : 95 T1 AX

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 11.3...11.5

100 s: (11.1...11.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

: 113.0...115.0 Del.quantity 1000 : (111.0...117.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.90

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm: 1070...1100 3rd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1240

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm: 250 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 250 Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 350...410 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.90...12.00 2nd speed rpm : 450 Rack travel in m: 11.90...12.00 3rd speed rpm : 250 Rack travel in m: 13.20...13.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Special-purpose vehicle

Note remarks

: ENA 11,9 g Test sheet : 25.03.88 Edition

Replaces

: ISO-4113

Test oil

Combination no. : 0 401 876 333

Injection pump

Pump designation : PE6P120A320RS257 EP type number : 0 411 826 075

Governor

Governor design. : RSV250...1100P0A533

: 0 421 833 274 Governer no.

Customer-spec. information Customer : ENASA

: 96 T1AO Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.**3**0...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6) cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 213.0...215.0 Del. quantity 1000 : (210.0...218.0)

Spread

cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

A11

3rd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 rpm : 250 Speed

Rack travel in mm : 5.70...5.40
Rack travel in mm : 2.00

ram : 350...410 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.20...11.30

2nd speed rpm : 450

Rack travel in m: 11.20...11.30

3rd speed rpm : 250

Rack travel in m: 12.40...13.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm: 19.50...21.00

Remarks:

APPLICATION

Special-purpose vehicle

Note remarks

Test sheet : MWM 10,8 a2 : 06.04.88 Edition

Replaces

Test oil

: ISO-4113

Combination no. : 0 401 876 334

Injection pump

Pump designation : PE6P120A320RS468 : 0 411 826 128 EP type number

Governor

Governor design. : RSUV300...900P0A320-

Governer no.

: 0 421 829 107

Customer-spec. information

Customer

Engine

: D-TBD 234 V6

1st version kW

: 300.0

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1- 6- 3- 2- 5- 4 Firing order

Phasing : 0-90-120-210-240-330

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rom: 750

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9) cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

: 249.0...251.0 Del.quantity

1000 : (246.0...254.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 70...78

Testing:

1st rack travel in: 13.50

rpm : 940...950 Speed

2nd rack travel in: 4.00 Speed rpm : 965...995 4th rack travel in: 1130 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 29...37 Setting point w/out bumper spring

rpm : 300 Rack travel in mm : 5.1 rpm : 300 Speed

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00

rpm : 320...380 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 14.50...14.60

2nd speed rpm : 450

Rack travel in m: 14.50...14.60

3rd speed rpm : 280

Rack travel in m: 15.70...16.30

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.50 rpm : 940...950 Speed

Remarks:

Note remarks

Test sheet : SCA 11,0 t2 Edition : 5.5.88 Replaces : 2.80

Test oil : ISO-4113

Combination no. : 0 401 876 714

Injection pump

Pump designation : PE6P110A720RS3066

EP type number : 0 411 816 716

Governor

Governor design. : RSV350...1100P1/462R

Governer no. : 0 421 833 109

Customer-spec. information Customer : SCANIA

Engine : DS 11

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40 : (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 16.1...16.4

100 s: (15.8...16.7)

Spread cm3: 0.4

100 s: (0.8)

2nd speed rpm : 350

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 1.0...1.4

100 s: (-)

Spread cm3 : 0.2 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 161.0...164.0 1000 : (158.0...167.0)

Spread cm3 : 4.0

1000 : (8.0)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.30

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.00 Testing: : 100 Speed rpm Minimum rack trave: 20.00 : 350 rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 rpm : 520...580 Speed FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 162.5...165.5 1000 s: (159.5...168.5) cm3 : 6.0 Spread 1000 s: (4.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 190.0...240.0 1000 s: (-) Rack travel in mm : 20.0...21.0 HIGH IDLE 1st version Rack travel in mm : 5.50...5.70 Spread cm3 : 4.0 1000 s: (7.0) LOW IDLE Speed rpm : 350

2.40...2.60 mm. Permissible alteration from 2.20...2.90

Remarks:

Delivery-valve spring pre-tension =

1000 s: (4.0)

Rack travel in mm : 6.40...6.60

Del.quantity cm3/: 10.0...14.0 1000 s: (-) Spread cm3 : 2.0

A16

Note remarks

Test sheet : MB 11,0 d 1
Edition : 06.04.88
Replaces : 18.12.87
Test oil : ISO-4113

Combination no. : 0 401 876 739

Injection pump

Pump designation : PE6P110A320LS3805-10

EP type number : 0 411 816 740

Governor

Governor design. : RSV650...1150P1A820-

3

Governer no. : 0 421 833 177

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M421

1st version kW : 155.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 6-3-5-2-4-1

Phasing : 0-45-120-165-240-285

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.1)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 650.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1180

Del.quantity : 137.0...139.0

1000 : (134.5...141.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

A17

1st rack travel in: 11.50

rpm : 1210...1220 Speed

2nd rack travel in: 4.00

Speed rpm : 1240...1260

4th rack travel in: 1350

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

: 650 rpm Rack travel in mm: 6.1

Testing:

rpm : 100 Speed Minimum rack trave: 19.50 rpm : 650 Speed

Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00

rpm : 650...715 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 12.50...12.60

: 970 2nd speed rpm

Rack travel in m: 12.90...13.10

3rd speed rpm : 700

Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 970 Speed rpm

Del.quantity cm3/: 137.0...141.0 1000 s: (134.0...144.0)

cm3 : 6.00

Spread 1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

: 1210...1220 Speed rpm

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards. readjust speed regulation to 1160...1170 l/min.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PEN 10,0 k : 12.02.88 : 7.11.86 Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 876 754 Injection pump Pump designation : PEOP110A320RS3152 EP type number : 0 411 816 746 Governor Governor design. : RSV200...1100P1A515-: 0 421 833 293 Governer no. Customer-spec. information : VOLVO-PENTA Customer : TD100G Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 17.2...17.4 100 s: (16.9...17.7) cm3 : 0.4Spread 100 s: (0.7) rpm : 250.0 2nd speed Rack travel in mm: 4.1...4.3 Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 5.25 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 1000 cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 11.60 Speed rpm : 1120...1130 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300

Phasing

Tolerance + - 0

: 0-60-120-180-240-300

: 0.50 (0.75)

Prestroke mm

Firing order

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 3.50...3.60

: (3.45...3.65)

: 1-5-3-6-2-4

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 3.7 Speed rpm : 250
Rack travel in mm : 3.60...3.80
Rack travel in mm : 2.00 rpm : 290...350 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 1000 Speed rom Pressure Rack travel mm : 12.60...12.70 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 580 Rack travel in m: 12.40...12.50 3rd pressure hPa : 270 Rack travel in m: 10.30...10.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -Speed rpm : 700 Del.quantity cm3/: 124.5...127.5 1000 s: (122.0...130.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1120...1130 Speed STARTING FUEL DELIVERY

rpm : 100

1000 s: (166.0...204.0)

Del.quantity cm3/: 170.0...200.0

Rack travel in mm : 20.00...21.00

Speed

LOW IDLE

A20

Speed rpm : 250
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 6-3-5-2-4-1 Firing order Test sheet : MB 11,0 k 4 Edition : 07.03.88 Replaces : 18.9.87 Test oil : ISO-4113 Phasing : 0-45-120-165-240-285 Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 401 876 758 Time to cyl. no. Injection pump : 6 Pump designation : PE6P110A320LS3814-11 EP type number : 0 411 816 756 BASIC SETTING Governor Governor design.: RSV350..750POA531 rpm : 700 1st speed Governer no. : 0 421 833 269 Rack travel in mm : 13.20...13.30 Customer-spec. information Del.quantity cm3/: 13.9...14.1 Customer : DAIMLER-BENZ 100 s: (13.6...14.3) Engine : 0M421 1st version kW : 116.0 Spread cm3 : 0.4: 1500 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 7.4...7.7 Del.quantity cm3/ : 1.3...1.9 Test oil inlet temp. °C : 38...42 100 s: (1.0...2.1) Overflow valve cm3 : 0.4Spread : 1 417 413 025 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Over flow Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x : 2.00 Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Test lines : 1 680 750 015 rpm : 700 Speed Del.quantity : 139.0...141.0 1000 : (136.5...143.5) Outside diameter x Wall thickness : 4.00 Spread cm3 1000 : (8.00) : 6.00x1.50x600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control lever position degrees: 22...30 BEGINNING OF DELIVERY

Testing:

1st rack travel in: 12.10

Test pressure, bar: 25...27

rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm: 780...793 4th rack travel in: 1350

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 10...18 Setting point w/out bumper spring

Speed rpm: 350
Rack travel in mm: 7.5
Speed rpm: 350
Rack travel in mm: 7.40...7.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Before adjusting the full-load delivery, set control rod to 14.5... 15.0 mm travel with full-load adjusting screw in governor cover. Full-load adjustment with adjusting screw on governor housing. Observe VDT-I-420/120

Note remarks

Test sheet : MB 11.0 V Edition : 07.03.88

Replaces : Test oil : ISO-4113

Combination no. : 0 401 876 763

Injection pump

Pump designation : PE6P120A320LS3815-10

EP type number : 0 411 826 735

Governor

Governor design. : RSV650...1200P0A820-

8

Governer no. : 0 421 833 292

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M421A

1st version kW : 184.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h; 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 967

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance $+ - ^{0}$: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 15.4...15.6

100 s: (15.1...15.9)

Spread cm3:0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.4...3.7 Del.quantity cm3/: 1.8...2.4

100 s: (1.5...2.7) cm3 : 0.8

Spread cm3: 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1230

Del.quantity : 154.0...156.0

1000 : (151.0...159.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 9.50

rpm : 1260...1270 Speed

2nd rack travel in: 4.00

Speed rpm : 1285...1315 4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 650 Rack travel in mm: 3.5

Testing:

rpm : 100 Speed

Minimum rack trave: 19.50

Speed rpm : 650

Rack travel in mm : 3.40...3.70

Rack travel in mm : 2.00

rpm : 655...715

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 10.50...10.60

2nd speed rpm : 900

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 900 Speed rpm

Del.quantity cm3/: 162.0...166.0

1000 s: (159.0...169.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

rpm : 1260...1270 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

When adjusting and checking, adjust speed regulation to 1260...1270 l/min. Afterwards, readjust speed regulation to 1210...1220 l/min.

APPLICATION

Combine-harvester

Note remarks

Test sheet : MWM 14,4 a2 : 06.04.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 878 140

Injection pump

Pump designation : PE8P120A520/5RS427 : 0 411 828 048

EP type number

Governor

: RSUV300...900P0A320-Governor design.

: 0 421 829 107 Governer no.

Customer-spec. information Customer

: TBD 234 V8 Engine

: 400.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-8-5-4-7-2-3-

: 0-30-90-120-180-210-Phasing

Phasing : 270-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.0...2.6

100 s: (1.7...2.9)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 249.0...251.0 Del.quantity

1000 : (246.0...254.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 13.50

A25

Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 965...995
4th rack travel in: 1130
Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 69...77
Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 5.1
Speed rpm : 300

Rack travel in mm : 5.00...5.20

Rack travel in mm : 2.00

Speed rpm : 320...380

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 14.50...14.60

2nd speed rpm : 450

Rack travel in m: 14.50...14.60

3rd speed rpm : 280

Rack travel in m: 15.70...16.30

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.50 Speed rpm : 940...950

Remarks:

.

APPLICATION Generator set

Note remarks

: MB 14,6 P 1 Test sheet Edition : 11.12.87 : 7.12.87 Replaces : ISO-4113 Test oil

Combination no. : 0 401 878 703

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV650...1150P0A823

Governer no. : 0 421 833 166

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M422A Engine

1st version kW : 206.0 : 2300 Rated speed 2nd version kW : 206.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 13.3...13.5

100 s: (13.0...13.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 650.0 2nd speed

Rack travel in mm : 3.4...3.6 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

rpm : 1180 1st speed

Rack travel in mm : 9.30...9.40 Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.2

cm3 : 0.5

Spread 100 s: (0.9) rpm : 650

2nd speed

Rack travel in mm : 3.40...3.60

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70 TORQUE CONTROL Torque control curve - 1st version Governor spring pre-tension Click setting x :? 1st speed rpm : 1180 Rack travel in m: 9.00...9.10 2nd speed rpm : 975
Rack travel in m: 9.80...10.00 FULL LOAD DELIV. AT FULL LOAD STOP 3rd speed rpm : 1075 Rack travel in m: 9.30...9.50 1st version 4th speed rpm : 700 Speed rpm : 1180 Del.quantity : 133.0...135.0 Rack travel in m: 9.80...10.00 1000 : (130.0...138.0) cm3 : 5.00 Torque control curve - 2nd version Spread 1000 : (9.00) 1st speed rpm : 1180 Rack travel in m: 9.30...9.40 2nd version Speed rpm : 1180

Del.quantity cm3/: 137.0...139.0

1000 s: (134.0...142.0)

Spread cm3 : 5.00

1000 s: (9.00) 2nd speed rpm : 975 Rack travel in m: 10.1...10.2 3rd speed rpm : 1075 Rack travel in m: 9.60...9.80 4th speed rpm : 700 Rack travel in m: 10.1...10.3 RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 42...50 1st version rpm : 950 Speed Del.quantity cm3/: 145.0...149.0 1000 s: (142.0...152.0) Spread cm3: 8.00 Testing: 1st rack travel in: 8.00 Speed rpm: 1210...1220 2nd rack travel in: 4.00 1000 s: (12.0) rpm : 1235...1255 Speed 4th rack travel in: 1400 2nd version rpm : 950 rpm : 0.30...1.40 Speed Speed Del.quantity cm3/: 154.0...158.0 1000 s: (151.0...161.0) 2nd version cm3 : 8.00 Control lever Spread 1000 s: (12.0) position degrees: 42...50 Testing: 1st rack travel in: 8.30 **BREAKAWAY** Speed rpm : 1210...1220 2nd rack travel in: 4.00 1st version Speed rpm : 1235...1255 1mm rack travel less than 4th rack travel in: 1400 rpm : 0.30...1.40 full load rack tr: 8.00 Speed rpm : 1210...1220 Speed LOW IDLE 1 Control lever 2nd version position degrees: 20...28 1mm rack travel less than Setting point w/out bumper spring full load rack tr: 8.30 Speed rpm : 650 Rack travel in mm : 3.6 rpm : 1210...1220 Speed Speed STARTING FUEL DELIVERY : 650 rpm Rack travel in mm: 3.50...3.70 Rack travel in mm : 2.00 rpm : 655...695 rpm : 100 Speed Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Remarks:

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min. Test specifications for version 1 apply to injection-pump assemblies on engines as of engine no. 422.901-410117069.

APPLICATION Forage harvester

Note remarks

Test sheet : MB 14,6 p 3 Edition : 16.5.88 Replaces : 12.9.86 Test oil : ISO-4113

Combination no. : 0 401 878 707

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV350...750P0A824~3

Governer no. : 0 421 833 229

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M422A Engine

: 227.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5firing order

4- 1

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 18.4...18.6

100 s: (18.1...18.9)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 4.8...5.0 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

1000 : (181.0...186.0 cm3 : 5.00 1000 : (9.00) Deliquantity

Spread

RATED SPEED

1st version

Control lever position degrees: 26...30 Testing: 1st rack travel in: 11.10 Speed rpm : 750...755 2nd rack travel in: 4.00 rpm : 780...793 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.9 Testing: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm: 350 Rack travel in mm : 4.80...5.00 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1180 Rack travel in m: 9.30...9.40 2nd speed rpm : 975 Rack travel in m: 10.10...10.20 3rd speed rpm : 1075 Rack travel in m: 9.60...9.80 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.30 rpm : 1210...1220 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 170.0...190.0 1000 s: (166.0...194.0)

Remarks:

Observe VDT-I-420/120

0

Note remarks

Test sheet : MB 14,6 p 5
Edition : 19.05.88
Replaces : 2.11.87
Test oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump

Pump designation : PE8P12OA32OLS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV650...1150P0A823-

5

Governer no. : 0 421 833 280

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422A

1st version kW : 206.0 Rated speed : 2300 2nd version kW : 206.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-

Firing order : 4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 650.0
Rack travel in mm : 3.3...3.6
Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 133.0...135.0 1000 : (130.0...138.0)

Soread cm3 : 5.00

1000 : (9.00)

2nd version

rpm : 1180 Speed

Del.quantity cm3/: 148.0...150.0 1000 s: (145.0...153.0)

cm3 : 5.00 Spread

1000 s: (9.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.30

rpm : 1210...1220 Speed

2nd rack travel in: 4.00

: 1235...1255 Speed Cpm

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 20...28 Setting point w/out bumper spring

Speed : 650 rom

Rack travel in mm: 3.4

rpm : 650 Speed

Rack travel in mm : 3.30...3.60
Rack travel in mm : 2.00

Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 9.30...9.40

2nd speed rpm : 950

Rack travel in m: 10.40...10.60

3rd speed rpm : 1050

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm3/ : 160.0...164.0

1000 s: (157.0...167.0)

Spread cm3 : 8.00

1000 s: (12.0)

2nd version

: 975 Speed rpm

Del.quantity cm3/: 159.0...163.0

1000 s: (156.0...166.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1210...1220

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

rpm : 650 Speed

Rack travel in mm: 3.30...3.60

Del.quantity cm3/: 16.0...22.0 1000 s: (13.0...25.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Version 1 = Combine harvester

Version 2 = Forage harvester

Note remarks

Test sheet : MB 14,6 s 2 Edition : 25.03.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 401 878 712

Injection pump

Pump designation : PE8P110A320L\$3802-10

EP type number : 0 411 818 710

Governor

Governor design. : RSV650...1200POA820-

7

Governer no. : 0 421 833 288

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422

1st version kW : 206.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

B06

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 8-7-3

: 8- 7- 2- 6- 3- 5-

4- 1

Phasing : 0-45-90-135-180-225-

Phasing Tolerance + - 0 : 270-315 : 0.50 (0.75)

Time to cyi. no. : 8

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 13.2...13.4

100 - (12.0 17.6)

100 s: (12.9...13.6)

Spread cm3: 0.4

100 s: (0.8)

2nd speed rpm : 650.0 Rack travel in mm : 5.1...5.4

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del.quantity : 132.0...134.0

1000 : (129.5...136*.*5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.30

rpm : 1260...1270 Speed

2nd rack travel in: 4.00

Speed rpm : 1285...1305 4th rack travel in: 1400

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

rpm : 650 Rack travel in mm: 5.2

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 rpm : 650

Rack travel in mm : 5.10...5.40 Rack travel in mm : 2.00

rpm : 650...670 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1230 Rack travel in m: 11.30...11.40

2nd speed rpm : 950

Rack travel in m: 12.00...12.20

3rd speed rpm : 1100

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950 Del.quantity cm3/ : 134.0...138.0

1000 s: (131.0...141.0)

cm3 : 6.00Spread

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1260...1270 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

B07

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1260...1270 l/min. Afterwards, readjust speed regulation to 1210...1220 l/min. **APPLICATION** Combine-harvester

Note remarks

Test sheet : MB 14,6 p 7 Edition : 11.03.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 401 878 713

Injection pump

Pump designation : PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV650...1200P0A823-

6

Governer no. : 0 421 833 289

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422A

1st version kW : 228.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

4- 1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 14.4...14.6

100 s: (14.1...14.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.6 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3: 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1230

Del.quantity : 144.0...146.0

1000 : (141.0...149.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

B08

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.10

rpm : 1260...1270 Speed

2nd rack travel in: 4.00

rpm : 1285...1305 Speed

4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

rpm : 650 Speed Rack travel in mm: 3.4 Speed rpm : 650

Rack travel in mm : 3.30...3.60 Rack travel in mm : 2.00

Speed rpm : 655...695

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1230

Rack travel in m: 10.10...10.20

2nd speed rpm : 900

Rack travel in m: 10.60...10.80

3rd speed rpm : 1100

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 900 Speed rpm

Del.quantity cm3/: 163.0...167.0

1000 s: (160.0...170.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1260...1270 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

rpm : 650 Speed

Rack travel in mm : 3.30...3.60 Del.quantity cm3/: 16.0...22.0 1000 s: (13.0...25.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

When adjusting and checking, adjust speed regulation to 1260...1270 l/min. Afterwards, readjust speed regulation

to 1210...1220 l/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 25...27 Note remarks Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 : MB 18,3 i 1 : 06.04.88 Test sheet : 10- 9- 4- 1- 8-- 6- 3- 5- 2 Edition Firing order : 12.9.86 Replaces : ISO-4113 Test oil Combination no. : 0 401 879 703 : 0-45-72-117-144-189-Phasing Injection pump 216-261-288-333 Tolerance + - 0 Pump designation : PE10P110A320LS3818-1 : 0.50 (0.75) EP type number : 0 411 819 706 Time to cyl. no. : 10 Governor Governor design. : RSV650...1150P0A823-BASIC SETTING : 0 421 833 244 Governer no. 1st speed rpm : 1180 Customer-spec. information Rack travel in mm : 10.90...11.00 Customer : DAIMLER-BENZ Del.quantity cm3/: 11.3...11.5 Engine : 0M 423 100 s: (11.0...11.7) : 238.0 1st version kW : 2300 Rated speed Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.8) Test oil rpm : 650.0 2nd speed inlet temp. OC : 38...42 Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 1.2...2.0 Overflow valve 100 s: (0.9...2.2) : 1 417 413 025 Spread cm3 : 0.4100 s: (0.7) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Overflow Control-lever position quantity min. 1/h: 130...150 Degree: -3 rpm : 800 Speed Rack travel in mm: 0.30...1.00 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x :? Opening : 172...175 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP : 1 680 750 015 Test lines 1st version rpm : 1180 Speed : 113.0...115.0 Outside diameter Del.quantity 1000 : (110.5...117.5) x Wall thickness : 4.00 : 6.00x1.50x600 cm3 x Length mm Spread 1000 : (8.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values ____ 1st version

Control lever

position degrees: 36...44

B10

BEGINNING OF DELIVERY

Testing:

1st rack travel in: 10.00

Speed rpm : 1210...1220

2nd rack travel in: 4.00

Speed rpm : 1235...1250

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 650 Rack travel in mm : 5.7

Testing:

Speed rpm : 100 Minimum rack trave: 19.50

Speed rpm : 650

Rack travel in mm : 5.60...5.80

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 10.80...11.00

2nd speed rpm : 1075

_ Rack travel in m: 11.70...11.90

3rd speed rpm : 950

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 950

Del.quantity cm3/: 127.0...131.0

1000 s: (124.0...134.0)

Spread cm3 : 6.00

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,00

Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm =

25...35 1/min.

when adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation

to 1160...i170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : STE 9,7 e : 29.04.88 Edition : 3.4.87 Replaces Test oil : ISO-4113 Combination no. : 0 401 886 701 Injection pump Pump designation : PE6P110A721RS3101 EP type number : 0 411 816 725 Governor Governor design. : RSV400...1200P1A527 Governer no. : 0 421 833 259 Customer-spec. information Customer : STEYR Engine : WD615.85/87 1st version kW : 206.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175

: 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 612

: 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. BASIC SETTING rpm : 1200 1st speed Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 17.2...17.4 100 s: (16.9...17.7) cm3 : 0.4Spread 100 s: (0.7) 2nd speed rpm : 400.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.4) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.75 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 1200 : 172.0...174.0 Del.quantity 1000 : (169.0...177.0) cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Control lever

position degrees: 64...72

Testing: 1st rack travel in: 11.00 Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1285...1315
3rd rack travel in: 4.00
Speed rpm : 1295...1325
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400

Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 400
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 12.00...12.10

2nd speed rpm : 700

Rack travel in m: 12.60...12.70

rpm : 520...580

4th speed rpm : 1120 ...12.40
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

Speed

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.60

Rack travel mm : 12.60...12.70

Measurement Speed 1/min: 500

1st pressure hPa : Rack travel in m: 8.70...8.90
2nd pressure hPa : 660
Rack travel in m: 11.70...11.80
3rd pressure hPa : 320

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm3/ : 178.0...184.0
1000 s: (175.0...187.0)
Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/ : 104.0...108.0 1000 s: (101.0...111.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...170.0

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a11 : 11.03.88 Edition

Replaces

ïest oil : ISO-4113

Combination no. : 0 402 036 048

Injection pump

Pump designation : PES6P120A720/3LS470-

EP type number : 0 412 026 051

Governor

Governor design. : RQV250...1100PA707

Governer no. : 0 421 813 440

Customer-spec. information Customer

: D2866KUL Engine

1st version kW : 265.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Gutside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.10...1.30 travel mm

2nd speed rpm : 450

: 3.00...3.40 travel mm

3rd speed rpm : 850 travel mm : 5.10...5.50

rpm : 1100 4th speed

travel mm : 7.20...7.40

GUIDE SLEEVE POSITION

rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed Aneroid pressure h: 1000

Del.quantity : 230.0...232.0 1000 : (227.0...235.0)

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 10.90 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1235...1265 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 12...20 Testing: rpm : 100 Speed Minimum rack trave: 7.00 : 250 rpm Rack travel in mm : 5.40...5.60 CONSTANT REGULATION rpm : 285...400 Speed TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 12.70...12.80 rpm : 1100 2nd speed Rack travel in m: 11.90...12.00 3rd speed rpm : 935 Rack travel in m: 12.50...12.70 4th speed rpm : 1010 Rack travel in m: 12.00...12.30 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed r pm hPa : 1000 Pressure Rack travel mm : 12.70...12.80 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.70 2nd pressure hPa : 130

Rack travel in m: 11.10...11.50 START CUT-OUT 1/min: 170 (190) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1100 Speed Del.quantity cm3/: 218.0...224.0 1000 s: (215.0...227.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 231.0...237.0 1000 s: (228.0...240.0) rpm : 500 Speed Del.quantity cm3/: 179.0...191.0 1000 s: (176.0...194.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 128.0...130.0 1000 s: (125.0...133.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 225.0...245.0 1000 s: (225.0...245.0) LOW IDLE Speed rpm : 250
Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Test sheet : MAN 11,9a14 Firing order Edition : 20.05.88 Replaces : 4.86 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 036 055 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6P120A720/3LS470-Time to cyl. no. : 6 : 0 412 026 050 BASIC SETTING EP type number Governor Governor design. : RQ300/1100PA658-21 rpm: 750 1st speed Governer no. ~ : 0 421 801 342 Rack travel in mm : 11.30...11.40 Customer-spec. information Customer Del.quantity cm3/: 20.5...20.7 : D2866LUH Engine 100 s: (20.2...21.0) : 243.0 Spread cm3 : 0.51st version kW : 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm: 4.7...4.9 Test oil inlet temp. °C Del.quantity cm3/: 1.2...1.8 : 38...42 100 s: (0.9...2.1) Overflow valve cm3 : 0.8Spread 100 s: (1.2) : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 019 assembly Speed rpm : 600 Rack travel in mm: 19.20...20.80 Opening FULL LOAD DELIV. AT FULL LOAD STOP : 207...210 pressure, bar Orifice plate 1st version rpm : 750 diameter mm : 0,8 Speed Aneroid pressure h: 1000 : 205.0...207.0 Del.quantity : (202.0...210.0) 1000 Test lines : 1 680 750 067 : 5.00 cm3 Spread 1000 : (9.00) Outside diameter x Wall thickness : 6.00X1.50X1000 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ : 600

Speed

Testing:

rpm Rack travel in mm : 20.0

B16

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

1st rack travel in: 10.10 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1185...1215 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300' Rack travel in mm: 4.8 Testing: Speed rpm : 100 Minimum rack trave: 6.30 rpm : 300 Speed Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 rpm : 350...390 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.60...11.70 2nd speed rpm : 1100 Rack travel in m: 11.10...11.20 3rd speed rpm : 925 Rack travel in m: 11.30...11.40 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa : 1000 Rack travel mm : 11.30...11.40 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 8.60...8.70 2nd pressure hPa : 190 Rack travel in m: 8.90...9.00 3rd pressure hPa : 520 Rack travel in m: 11.10...11.40 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) Aneroid pressure h: 520 Speed rpm : 500 Del.quantity cm3/ : 190.0...198.0 1000 s: (187.0...201.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 119.0...121.0 1000 s: (116.0...124.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1145...1160 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

Speed rpm : 300 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00Spread

LOW IDLE

1000 s: (12.00)

Remarks: : MAN-NR. 2-7711

1st version Aneroid pressure h: 1000 rpm : 1100 Speed

B17

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 11,9 96 Test sheet Edition : 11.12.87 : 7.12.87 Replaces : ISO-4113 Test oil Combination no. : 0 402 036 064 Injection pump Pump designation : PES6P110A720/3LS477-: 0 412 016 071 EP type number Governor Governor design. : RQ250/1100PA817-1 Governer no. : 0 421 801 362 Customer-spec. information Customer

: D2566UH/205 Engine

1st version kW : 150.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 9.1...9.4

100 s: (8.8...9.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.5...2.0 100 s: (1.2...2.2) cm3 : 0.4 100 s: (0.7)

Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed

: 91.0...94.0 Del.quantity 1000 : (88.5...96.5)

cm3 : 4.00Spread 1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1145...1160

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

B18

4th rack travel in: 1300 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

_ rpm : 250 Rack travel in mm: 6.2

Testing:

Speed rpm : 100 Minimum rack trave: 7.70

Speed rpm: 250
Rack travel in mm: 6.10...6.30
Rack travel in mm: 2.00 : 330...370 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.50...10.60 2nd speed rpm : 500 Rack travel in m: 10.50...10.70

START CUT-OUT

1/min : 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100 Del.quantity cm3/ : 101.0...109.0 1000 s: (98.0...112.0)

Speed rpm : 500 Del.quantity cm3/ : 77.0...85.0 1000 s: (74.0...88.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 110.0...130.0

1000 s: (106.0...134.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 15.0...20.0

1000 s: (12.5...22.5)

B19

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: MAN-NR, 2-7768

APPLICATION Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 11,9a33 Test sheet Edition : 06.04.88 Replaces : ISO-4113 Test oil Combination no. : 0 402 036 074 Injection pump Pump designation : PES6P120A720/3LS470-: 0 412 026 050 EP type number Governor Governor design.: RQ300/1100PA658-24 Governer no. : 0 421 801 437 Customer-spec. information Customer Engine : D2866K0H : 265.0 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm : 750 Rack travel in mm : 12.20...12.30 Del.quantity cm3/: 22.8...23.0 100 s: (22.5...23.3) Spread cm3 : 0.5100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.2...1.8 100 s: (0.9...2.1) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: 108 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 Speed Aneroid pressure h: 1000 Del.quantity : 228.0...233.0)
Soread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20 Speed rpm : 1145...1160 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.3 Testing: rpm : 100 Speed Minimum rack trave: 6.80 : 300 Speed rpm Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 : 350...390 Speed rpm TORQUE CONTROL Dimension a mm : 0.55 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.20...11.30 2nd speed rpm : 750 Rack travel in m: 12.70...12.90 3rd speed rpm : 920 Rack travel in m: 12.40...12.60 4th speed rpm : 985 Rack travel in m: 11.60...11.90 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 500 Pressure hPa : 1000 Rack travel mm : 12.20...12.30 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 9.10...9.20 2nd pressure hPa : 80 Rack travel in m: 9.40...9.50 3rd pressure hPa : 400 Rack travel in m: 11.00...11.40 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1000 Speed : 1100 rpm Del.quantity cm3/: 210.0...214.0 1000 s: (207.0...217.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 228.0...234.0 1000 s: (225.0...237.0) : 500 Speed rpm Del.quantity cm3/: 188.0...200.0 1000 s: (185.0...203.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 134.0...136.0 1000 s: (131.0...139.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) Spread cm3 : 8.001000 s: (12.00)

Remarks:

APPLICATION

Omnibus

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Test sheet : MAN 11,9a34 Firing order : 06.04.88 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 036 075 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6P120A720/3LS470-Time to cyl. no. EP type number : 0 412 026 050 BASIC SETTING Governor Governor design. : RQ300/1100PA813-5 rpm : 750 1st speed : 0 421 801 434 Governer no. Rack travel in mm : 10.80...10.90 Customer-spec. information Customer Del.quantity cm3/: 18.5...18.7 : D2866TUH 100 s: (18.2...19.0) Engine 1st version kW : 213.0 Spread cm3 : 0.5 Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Test oil Rack travel in mm: 5.2...5.4 inlet temp. OC Del.quantity cm3/: 1.2...1.8 : 38...42 100 s: (0.9...2.1) Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 019 rpm : 750 assembly Speed Rack travel in mm : 14.70...16.30 Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 Orifice plate 1st version diameter mm : 0,8 rpm : 750 Speed Aneroid pressure h: 1000 : 185.0...187.0 Del.quantity 1000 : (182.0...190.0) Test lines : 1 680 750 067 cm3 : 5.00 Spread 1000 : (9.00) Outside diameter x Wall thickness : 6.00x1.50x1000 RATED SPEED x Length mm (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed rpm : 750

Rack travel in mm: 15.5

Testing:

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

1st rack travel in: 9.80 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 5.3 Testing: rpm : 100 Speed Minimum rack trave: 6.80 rpm : 300 Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 : 390...430 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.00...11.20 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 1000 Speed rpm Pressure Rack travel mm : 10.80...10.90 Measurement 1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.70

2nd pressure hPa : 190

Rack travel in m: 8.80...8.90

3rd pressure hPa : 350

Rack travel in m: 9.80...10.20

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1100 Del.quantity cm3/ : 190.0...196.0 1000 s: (187.0...199.0) Aneroid pressure h: 350

Speed rpm : 500

Del.quantity cm3/: 164.0...176.0

1000 s: (161.0...179.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 205.0...225.0

1000 s: (201.0...229.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 12.0...18.0

1000 s: (9.0...21.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

APPLICATION 0mn ibus

B23

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 11,9 j : 16.05.88 Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 036 726 Injection pump Pump designation : PES6P120A720LS3205 EP type number : 0 412 026 729 Governor Governor design. : RQ300/1100PA813-2 : D 421 801 416 Governer no. Customer-spec. information Customer : MAN Engine : D2866LX 1st version kW : 265.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1,50 Test nozzle holder ; 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 : 1 680 750 067 Test lines Outside diameter x Wall thickness

: 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 6- 2- 4- 1- 5- 3 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING rpm : 700 1st speed Rack travel in mm : 13.10...13.20 Del.quantity cm3/: 22.8...23.0 100 s: (22.5...23.3) Spread cm3 : 0.5100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm: 4.1...4.3 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 650 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure h: 1000 : 228.0...230.0 Del.quantity 1000 : (225.0...233.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Setting point: rpm : 650 Speed Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.10

x Length mm

rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 3rd rack travel in: 4.00 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.2 Testing: rpm : 100 Speed Minimum rack trave: 5.70 rpm : 300 Speed Rack travel in mm : 4.10...4.30 Rack travel in mm : 2.00 rpm : 345...385 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 13.10...13.20 2nd speed rpm : 700 Rack travel in m: 13.70...13.90 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1000 Rack travel mm : 13.10...13.20 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 9.50...9.70 2nd pressure hPa : 150 Rack travel in m: 9.80...10.00 3rd pressure hPa : 510 Rack travel in m: 11.60...12.00 START CUT-OUT 1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

Speed rpm: 1100 Del.quantity cm3/: 227.0...231.0 1000 s: (224.0...234.0)

Aneroid pressure h: 1000

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 134.0...136.0 1000 s: (131.0...139.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 1145...1160

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ALO 13,8 b2 : 15.5.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 046 158

Injection pump

Pump designation : PES6P120A320RS354

Governor

Governor design.: RQV300...875PA361KR

Customer-spec. information

: ALLIS CHALMERS Customer

: 16.000-25.000 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 443 022 assembly

Opening

pressure, bar : 172...175

: 1 680 750 060 Test lines

Outside diameter x Wall thickness

: 8,00x2,00x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 26.5...27.1

100 s: (-)

cm3 : 0.3 Spread

100 s: (-)

2nd speed rpm : 300 Rack travel in mm : 3.40...3.60

Del.quantity cm3/: 1.8...2.4

100 s: (-)

Spread cm3 : -

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 925 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed

: 161.0...163.0 Del.quantity

1000 : (159.0...164.0

cm3 : 3.0 Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 15.00 Speed rpm: 915...925 2nd rack travel in: 3.50

rpm : 975...1005 Speed

4th rack travel in: 1060

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

rpm : 100 Speed Minimum rack trave: 8.00 Speed rpm : 250 Rack travel in mm : 3.80...6.00 Rack travel in mm : 1.85 Speed rpm : 385...415 rpm : 550 Speed Maximum rack trave: 0.30 TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 8.70...8.80 2nd speed rpm : 600 Rack travel in m: 8.75...8.85 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0) Spread cm3 : 1000 s: (-) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.70 rpm : 915...925 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 130.0...170.0 1000 s: (-) LOW IDLE Speed rpm : 300 Del.quantity cm3/ : 18...24 1000 s: (-)

: ALLIS-CHALMERS NO.

: 4 395 449

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 6-2-4-1-5-3 Note remarks : 0-60-120-180-240-300 Test sheet : NB 11,4 119 Phasing Tolerance + - 0 : 0.5(0.75) Edition : 19.5.88 Replaces Test oil : ISO-4113 Time to cyl. no. : 6 Combination no. : 0 402 046 299 BASIC SETTING Injection pump 1st speed rpm : 950 Pump designation : PES6P110A820LS442 : 0 412 016 060 Rack travel in mm : 11.40...11.50 EP type number Governor Del.quantity cm3/ : 11.0...11.2 Governor design. : RQ250/950PA483-3 Governer no. : 0 421 801 363 100 s: (10.7...11.5) Customer-spec. information cm3 : 0.4Customer : DAIMLER-BENZ Spread : 0M407 Engine 100 s: (0.8) : 147.0 rpm : 250 1st version kW 2nd speed Rack travel in mm : 8.40...8.60 : 1900 Rated speed Del.quantity cm3/: 1.4...2.0 TEST BENCH REQUIREMENTS 100 s: (1.1...2.2) cm3 : 0.4 100 s: (0.7) Spread Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 025 Degree: -1 rpm : 600 Speed Rack travel in mm : 13.00...14.00 Inlet press., bar: 1.50 Test nozzle holder FULL LOAD DELIV. AT FULL LOAD STOP : 0 681 343 009 assembly 1st version Opening Speed rpm : 950 : 110.0...112.0 pressure, bar : 172...175 Del.quantity 1000 : (107.0...115.0) : 4.0 Spread cm3 Test lines : 1 680 750 015 1000 : (8.0)RATED SPEED Outside diameter x Wall thickness : 6,00x1,50x600 x Length mm 1st version (A) Injection pump setting values Setting point: rpm : 600 Insp. values in parentheses Speed Rack travel in mm: 13.5 Set equal delivery quant. per values Testing: BEGINNING OF DELIVERY 1st rack travel in: 10.40 rpm : 995...1010

Speed

Speed

Speed

2nd rack travel in: 4.00

4th rack travel in: 1150

rpm : 1040...1070

rpm : 0.00...1.00

B28

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 3.20...3.30

: (3.15...3.35)

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm: 8.1

Testing:

rpm : 100 Speed Minimum rack trave: 9.70

Speed rpm : 250
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 330...370

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 97.0...101.0 1000 s: (94.0...104.0) Spread cm3 : 6.0 1000 s: (9.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

: 2.80...2.90 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : RVI 9,8 a 7 Test sheet Edition : 19.05.88 Replaces : 7.11.86 : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 402 046 330 : 0.50 (0.75) Injection pump BEGINNING OF DELIVERY DIFFERENCE Pump designation : PES6P120A320RS419-2 betw. rack trav. m: 10.00...11.00 EP type number : 0 412 026 048 & maximum rack tra: 21.00 Difference OCS: ? Governor Governor design.: RQ275/1050PA844 : 0 421 801 379 Governer no. BASIC SETTING Customer-spec. information : RVI 1st speed rpm: 1050 Customer Rack travel in mm : 9.20...9.30 Engine : MIPS062045B : 176.0 Del.quantity cm3/: 16.1...16.3 1st version kW Rated speed : 2100 100 s: (15.8...16.6) TEST BENCH REQUIREMENTS Spread cm3 : 0.5 Test oil inlet temp. °C : 38...42 100 s: (0.9) 2nd speed rpm : 275.0 Rack travel in mm : 5.5...5.7 Overflow valve : 1 417 413 025 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Inlet press., bar: 1.50 Spread cm3 : 0.8100 s: (1.2) Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE POSITION Control-lever position Opening pressure, bar : 207...210 Degree: -2 Speed rpm : 600 Rack travel in mm: 19.20...20.80 Orifice plate diameter mm : 0,8 FULL LOAD DELIV. AT FULL LOAD STOP iest lines : 1 680 750 067 1st version rpm : 1050 Speed Aneroid pressure h: 700 Outside diameter x Wall thickness : 161.0...163.0 Del.quantity 1000 : (158.0...166.0) : 6.00X1.50X1000 x Length mm : 5.00 cm3 Spread 1000 : (9.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED

Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 Testing: 1st rack travel in: 8.20 Speed rpm : 1110...1120 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm: 3.6 Testing: rpm : 200 Speed Minimum rack trave: 5.50 rpm : 275 Rack travel in mm : 3.50...3.70 Rack travel in mm : 2.00 rpm : 300...340 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 9.70...9.80 2nd speed rpm : 700 Rack travel in m: 9.70...9.90 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 700 Rack travel mm : 9.20...9.30 Measurement Speed 1/min : 500 1st pressure hPa : Rack travel in m: 8.20...8.30 2nd pressure hPa : 260 Rack travel in m: 8.90...9.00 3rd pressure hPa : 230 Rack travel in m: 8.40...8.60 START CUT-OUT 1/min: 195 (215) Speed FUEL DELIVERY CHARACTERISTICS

1st version

Speed

CO3

Aneroid pressure h: 700

rpm : 700

Del.quantity cm3/: 149.0...155.0 1000 s: (146.0...158.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 103.0...105.0 1000 s: (100.0...108.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.20 rpm : 1110...1120 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) LOW IDLE Speed rpm : 275
Rack travel in mm : 3.50...3.70 Remarks:

Start-of-delivery mark 9.5° cam angle after start of delivery cyl. 1

APPLICATION 0mnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: RVI 9,8 a 8 : 19.05.88 Test sheet Edition Replaces : 11.12.87 Test oil : ISO-4113

Combination no. : 0 402 046 332

Injection pump

Pump designation : PES6P120A320RS419 EP type number : 0 412 026 037

Governor

Governor design. : RQ275/1050PA844-1 : 0 421 801 421 Governer no.

Customer-spec. information : RVI Customer

: MIPRO62045A Engine

1st version kW : 210.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

fest lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 18.5...18.7

100 s: (18.2...19.0)

cm3 : 0.5

Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.4) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 700

Del.quantity : 185.0...187.0 1000 : (182.0...190.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.10

Speed rpm : 1110...1120

2nd rack travel in: 4.30

Speed rpm : 1185...1215 4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275' Rack travel in mm : 4.2

Testing:

rpm : 200 Speed Minimum rack trave: 5.90 Speed rpm : 275

Rack travel in mm : 4.10...4.30

Rack travel in mm : 2.30 rpm : 310...350 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 700

Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.00...9.10

2nd pressure hPa : 360

Rack travel in m: 9.60...9.70

3rd pressure hPa : 160

Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 650

Del.quantity cm3/: 168.0...174.0 1000 s: (165.0...177.0)

Aneroid pressure h: rpm : 500 Speed

Del. quantity cm3/: 105.0...107.0

1000 s: (102.0...110.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 9.10

Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.10...4.30

Remarks:

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

APPLICATION 0mn ibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: RVI 9,8 d Test sheet Edition : 07.03.88

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 046 333

Injection pump

: PES6P120A320RS514 Pump designation

EP type number

: 0 412 026 052

Governor

Governor design. : RQV375...900PA885

Governer no.

: 0 421 813 689

Customer-spec. information

Customer

: RVI

Engine

: MIDRO62045

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

C06

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 21.2...21.4

100 s: (20.9...21.7)

cm3: 0.5 Spread

100 s: (0.9)

2nd speed rpm: 375.0 Rack travel in mm: 7.4...7.6 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.00...1.20 travel mm

2nd speed rpm : 500

: 3.00...3.40 travel mm

rpm : 750 3rd speed

: 5.90...6.30 travel mm

: 900 4th speed rpm

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 930 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 212.0...214.0 Del.quantity

1000 : (209.0...217.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.90 Speed rpm : 940...950

2nd rack travel in: 4.00 Speed rpm: 1010...1040 4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 68...76

Testing:

Speed rpm : 200 Minimum rack trave: 6.90

Speed rpm: 375
Rack travel in mm: 5.30...5.50

CONSTANT REGULATION

rpm : 420...590 Speed

START CUT-OUT

Speed 1/min : 295 (315)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90

rpm : 940...950 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

speed rpm : 375

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0) Spread cm3: 8.00

1000 s: (12.00)

Remarks: : BAUDOUIN

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : RVI 8,8 M Edition : 19.05.88

Replaces : ISO-4113 Test oil

Combination no. : 0 402 046 334

Injection pump

Pump designation : PES6P120A320RS515 EP type number : 0 412 026 053

Governor

Governor design. : RQV300...1150PA527K Governer no. : 0 421 815 164

Customer-spec. information Customer : RVI

: MIDR 062030B Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

C08

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10.00...11.00

& maximum rack tra: 21.00 Difference OCS : ?

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 600.0 2nd speed Rack travel in mm : 5.4...5.6

Del.quantity cm3/: 1.8...2.4

100 s: (1.5...2.7)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.70...2.10 travel mm

2nd speed rpm : 900

travel mm : 5.80...6.20
3rd speed rpm : 1150
travel ----

travel mm : 7.40...7.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1225 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 143.0...145.0 Del.quantity

1000 : (140.0...148.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.20

rpm : 1235...1245 Speed

2nd rack travel in: 4.00

rpm : 1305...1335 Speed

4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed

Testing:

rpm : 200 Speed

Minimum rack trave: 6.50

rpm : 300

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.20...10.30

2nd speed rpm : 750

Rack travel in m: 9.20...9.30

3rd speed rpm: 500 Rack travel in m: 8.60...8.80 4th speed rpm: 350

Rack travel in m: 8.50...8.80

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 119.0...125.0

1000 s: (116.0...128.0)

rpm : 500 Speed

Del.quantity cm3/: 67.0...73.0 1000 s: (64.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1235...1245 Speed

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm: 300 Rack travel in mm: 4.70...4.90 Del.quantity cm3/: 13.0...19.0 1000 s: (10.0...22.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: RVI 8,8 m 1 Test sheet Edition : 12.02.88

Replaces Test oil

: ISO-4113

Combination no. : 0 402 046 335

Injection pump

Pump designation : PES6P120A320RS515 EP type number : 0 412 026 053

Governor

: RQV300...1150PA527-Governor design.

2K

: 0 421 815 188 Governer no.

Customer-spec. information Customer : RVI

Engine : MIDRO62030C

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

vutside diameter

x Wall thickness

Prestroke mm

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

cm3 : 0.5 Spread

100 s: (0.9)

2nd speed rpm : 600.0 Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 1.8...2.4

100 s: (1.5...2.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.70...2.10 travel mm

2nd speed rpm : 900

: 5.80...6.20 travel mm

: 1150 3rd speed rpm

: 7.40...7.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1225

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 143.0...145.0 Del.quantity 1000 : (140.0...148.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.20

Speed rpm : 1235...1245

2nd rack travel in: 4.00

Speed rpm : 1305...1335 4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.20 Speed rpm: 300

Rack travel in mm : 4.40...4.60

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : 1.40

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.20...10.30 2nd speed rpm : 750 Rack travel in m: 9.20...9.30

3rd speed rpm : 500

Rack travel in m: 8.60...8.80

4th speed rpm : 350

Rack travel in m: 8.40...8.80

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 119.0...125.0

1000 s: (116.0...128.0)

Speed rpm : 500 Del.quantity cm3/ : 67.0...73.0

1000 s: (64.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1235...1245

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0

1000 s: (131.0...159.0)

LOW IDLE

Speed rpm: 300 Rack travel in mm: 4.40...4.60 Del.quantity cm3/: 13.0...19.0 1000 s: (10.0...22.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 60 cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 6,2 b 1 Edition : 19.05.88 : 22.1.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 788 Injection pump Pump designation : PES6P110A320RS3190 : 0 412 016 720 EP type number Governor Governor design. : RQV275...1175PA833-3 Governer no. : 0 421 813 656 Customer-spec. information : RV1 Customer : MIDR 060226D Engine 1st version kW : 151.0 : 2350 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening. : 172...175 pressure, bar : 1 680 750 067 Test lines Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 4.20...4.30 Prestroke mm : (4.15...4.35) Rack travel in mm : 18.00...21.00 C12

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - D : 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 4.50...5.00 & maximum rack tra: 21.00 Difference CS : 4.00...6.00 BASIC SETTING rpm : 1175 1st speed Rack travel in mm : 13.40...13.50 Del.quantity cm3/: 11.6...11.9 100 s: (11.3...12.1) cm3 : 0.4Spread 100 s: (0.7) rpm : 275.0 2nd speed Rack travel in mm: 8.6...8.8 Del.quantity cm3/: 2.7...3.2 100 s: (2.4...3.4) Spread cm3 : 0.4100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 0.90...1.10 travel mm 2nd speed rpm : 450 travel mm : 3.40...3.80 rpm : 800 3rd speed : 5.10...5.50 travel mm rpm : 1175 4th speed : 7.20...7.50 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1330 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

rpm : 1175

Speed

Aneroid pressure h: 1000 : 116.0...119.0 Del.quantity 1000 : (113.5...121.5) : 4.00 Spread cm3 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 12.40 Speed rpm : 1245...1255 2nd rack travel in: 4.00 rpm : 1400...1430 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 14...22 Testing: : 200 Speed rpm Minimum rack trave: 7.00 Speed rpm : 275 Rack travel in mm : 4.60...4.80 CONSTANT REGULATION rpm : 250...320 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 nPa : 1000 Speed Pressure : 13.40...13.50 Rack travel mm Measurement 1/min : 500 Speed ist pressure hPa : -Rack travel in m: 9.90...10.10

2nd pressure hPa : 400

3rd pressure hPa : 160

FUEL DELIVERY CHARACTERISTICS

START CUT-OUT

Rack travel in m: 12.80...12.90

Rack travel in m: 10.80...11.20

1/min: 195 (215)

Speed rpm : 700 Del.quantity cm3/: 111.5...116.5 1000 s: (108.5...119.5) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 47.5...50.5 1000 s: (45.0...53.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 Speed rpm : 1245...1255 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (86.0...114.0) LOW IDLE rpm : 275 Speed Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 27.0...32.0 1000 s: (24.5...34.5) Spread cm3 : 4.50 1000 s: (7.50) Remarks:

1st version

Aneroid pressure h: 1000

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks : UNI 9,5 c : 0-60-120-180-240-300 Test sheet Phasing Edition : 11.03.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 402 046 790 1st speed rpm: 1025 Injection pump Rack travel in mm : 10.70...10.80 Pump designation : PES6P110A720RS3140 EP type number : 0 412 016 716 Del.quantity cm3/: 12.7...13.0 Governor Governor design. : RQ310/1025PA872 100 s: (12.4...13.2) Governer no. : 0 421 801 413 Customer-spec. information Spread cm3 : 0.4Customer : IVECO-UNIC 100 s: (0.7) Engine : 8460.21.611 2nd speed rpm : 310.0 Rack travel in mm: 6.8...7.0 1st version kW : 162.0 Del.quantity cm3/: 2.2...2.7 : 2050 Rated speed 100 s: (1.9...2.9) cm3 : 0.4TEST BENCH REQUIREMENTS Spread 100 s: (0.7) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -2 : 1 417 413 025 rpm : 600 Speed Rack travel in mm : 19.20...20.80 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version Speed rpm : 1025 Aneroid pressure h: 700 Opening Del.quantity : 127.0...130.0 1000 : (124.5...132.5) pressure, bar : 172...175 Spread cm3 : 4.00 Test lines : 1 680 750 015 1000 : (7.50) RATED SPEED Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 1st version (A) Injection pump setting values Setting point: Speed rpm : 600 Rack travel in mm : 20.0 Insp. values in parentheses Set equal delivery quant. per values

Testing:

1st rack travel in: 9.70

Speed rpm : 1070...1085

2nd rack travel in: 4.00

Speed rpm : 1120...1150

4th rack travel in: 1300

Speed rpm : 0.00...1.00

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 310 Speed Rack travel in mm: 6.9

Testing:

Speed rpm : 100 Minimum rack trave: 8.40 Speed rpm: 310

Rack travel in mm : 6.80...7.00

Rack travel in mm : 2.00 Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 10.70...10.80

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 210

Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 105.0...108.0 1000 s: (102.5...110.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

rpm : 1070...1085 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION 0mn ibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 12,0 f2 : 20.05.88 Edition : 5.2.88 Replaces : ISO-4113 Test oil Combination no. : 0 402 046 791 Injection pump Pump designation : PES6P120A320RS3139 EP type number : 0 412 026 718 Governor Governor design.: RQV275...950PA728-4 Governer no. ` : 0 421 813 678 Customer-spec. information Customer : RVI : MIDR 063540 H Engine 1st version kW : 264.0 Rated speed : 1900 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 iest lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10.00...11.00

& maximum rack tra: 21.00 Difference OCS : ?

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 13.30...13.40

Del.quantity cm3/: 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 7.5...7.7 Del.quantity cm3/: 2.2...2.8 100 s: (1.9...3.1)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250 travel mm : 1.00...1.20

2nd speed rpm : 450

: 3.30...3.80 travel mm

3rd speed rpm : 800

: 5.80...6.00 travel mm

4th speed rpm : 950

: 6.80...6.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950 Aneroid pressure h: 1000

Del. quantity : 249.0...254.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.30

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

rpm : 1160...1190 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

: 200 Speed rpm Minimum rack trave: 7.40

Speed rpm : 275

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 295...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1000 Pressure

Rack travei mm : 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa :-

Rack travel in m: 9.50...9.60

2nd pressure hPa : 660

Rack travel in m: 12.60...12.70

3rd pressure hPa : 200

Rack travel in m: 10.30...10.50

START CUT-OUT

1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 600 Speed

Del.quantity cm3/: 255.0...261.0 1000 s: (252.0...264.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 119.0...123.0

1000 s: (116.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 22.0...28.0

1000 s: (19.0...31.0) cm3 : 8.00

1000 s: (12.00)

Remarks:

Spread

Start-of-delivery mark 90 cam angle

after start of delivery cyl. 1.

Note remarks

Test sheet i13 4 ,4 i HB Edition : 25.03.88 Replaces : 26.2.88

Test oil : ISO-4113

Combination no. : 0 402 046 795

Injection pump

Pump designation : PES6P120A820LS3077-1

: 0 412 026 730 EP type number

Governor

Governor design. : RQ300/1100PA606-2

Governer no. : 0 421 801 249

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M407A

1st version kW : 206.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening.

pressure, bar : 207...210

urifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm : 1100 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 700

Del.quantity : 165.0...167.0 1000 : (162.0...170.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 650 rpm

C18

Rack travel in mm : 20.0 Testing: 1st rack travel in: 10.00 Speed rpm : 1145...1160 2nd rack travel in: 4.00 rpm : 1190...1220 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.1 Testing: rpm : 100 Speed Minimum rack trave: 6.50 Speed rpm : 300
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.00...11.10 2nd speed rpm : 920 Rack travel in m: 11.20...11.40 3rd speed rpm : 850 Rack travel in m: 11.60...11.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : -Pressure Rack travel mm : 10.40...10.60 Measurement Speed 1/min : 500 1st pressure hPa : 280 Rack travel in m: 10.80...10.90 2nd pressure hPa : 350 Rack travel in m: 11.40...11.60

START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 600

Del.quantity cm3/: 178.5...181.5 1000 s: (175.5...184.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1145...1160 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

:

Remarks:

C19

Note remarks

: UNI 9,5 d Test sheet Edition : 07.03.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 046 796

Injection pump

Pump designation : PES6P110A720RS3140

EP type number : 0 412 016 716

Governor

Governor design. : RQV275...1150PA501-5 Governer no. : 0 421 813 694

Customer-spec. information Customer : IVECO-UNIC

: 8460.21.010 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.8...14.1

100 s: (13.5...14.3)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 275.0 2nd speed Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 2.2...2.7

100 s: (1.9...2.9)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

; 1.00...1.20 travel mm

2nd speed rpm : 400

: 2.70...3.00 travel mm

3rd speed rpm : 850

: 5.00...5.20 travel mm

4th speed rpm : 1150

: 7.30...7.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1260 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

rpm : 1150 Speed

Aneroid pressure h: 700

Del.quantity : 138.0...141.0 1000 : (135.5...143.5)

cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.10

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1275...1305 4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

Speed rpm : 100 Minimum rack trave: 8.40 Speed rpm : 275

Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 275...520

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 11.10...11.20

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 240

Rack travel in m: 10.80...10.90 3rd pressure hPa : 210

Rack travel in m: 10,20,...10,40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm_ : 500

Speed

Del.quantity cm3/: 105.0...108.0 1000 s: (102.5...110.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 8- 4- 2- 7- 3-Note remarks : RVI 14.9 a : 13.05.87 Test sheet : 0-45-90-135-180-225-Edition Phasing : 7.83 270-315 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 Combination no. : 0 402 048 038 Time to cyl. no. : 5 Injection pump BASIC SETTING Pump designation : PES8P120A320RS437 EP type number : 0 412 028 021 rpm: 700 1st speed Governor Rack travel in mm : 13.10...13.20 Governor design. : RQ750PA596 Governer no. : 0 421 801 149 Del.quantity cm3/: 26.7...26.9 Customer-spec. information : RVI Customer 100 s: (26.4...27.2) : MIVS (R) 083530 cm3 : 0.5 Engine Spread TEST BENCH REQUIREMENTS 100 s: (0.9) 2nd speed rpm : 250.0
Rack travel in mm : 5.0...5.2
Del.quantity cm3/ : 1.5...2.1 Test oil inlet temp. °C : 38...42 Overflow valve 100 s: (1.2...2.4) : 1 417 413 025 cm3 : 0.8Spread 100 s: (1.2) Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 1 688 901 019 1st version assembly rpm : 700 Speed : 267.0...269.0 Opening Del.quantity 1000 : (264.0...272.0) : 207...210 pressure, bar : 5.00 Spread cm3 1000 : (9.00) Orifice plate diameter mm : 0,8 RATED SPEED Test lines : 1 680 750 067 1st version Testing: Outside diameter x Wall thickness 1st rack travel in: 12.10 : 6.00x1.50x1000 rpm : 750...755 x Length mm Speed 2nd rack travel in: 4.00 Speed (A) Injection pump setting values rpm : 776...789 Insp. values in parentheses 4th rack travel in: 900

Set equal delivery quant.
per values ____
BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Test pressure, bar: 25...27

Rack travel in mm: 9.00...12.00 | full load rack tr: 12.10

Speed

BREAKAWAY

1st version

1mm rack travel less than

rpm : 0.00...1.00

C22

Speed rpm : 750...755

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

: DEE 7.6 l 1 : 16.5.88 Test sheet

Edition

Replaces Test oil

: ISO-4113

Combination no. : 0 402 076 039

Injection pump

Pump designation : PES6P110A720RS305

Governor

Governor design. : RSV400...1100P2/434

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. DC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 11.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 : 0.5 (0.75) Phasing

Tolerance + - 0

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 14.9...15.1

100 s: (14.7...15.3)

cm3 : 0.4Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6.10...6.30

Del.quantity cm3/: 1.4...2.0

100 s: (-)

Spread cm3 : -100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 800

Del.quantity : 147.0...153.0)

cm3 : 4.0Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.50

Speed rpm : 1145...1155

2nd rack travel in: 6.00

rpm : 1185...1215 Speed

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 6.20

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 6.10...6.30

Rack travel in mm: 2.00

rpm : 570...630 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 550 Speed hPa : 180 Pressure Rack travel mm : MIN.

Measurement

1/min: 550 Speed

1st pressure hPa : 850

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 650 Speed

Del.quantity cm3/: 154.0...157.0 1000 s: (152.0...159.0)

Spread cm3 : -

1000 s: (-) Aneroid pressure h: -

rpm : 550

Del.quantity cm3/: 88.0...96.0

1000 s: (86.0...98.0) Spread cm3 : -

1000 s: (-)

DREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200 Del.quantity cm3/ : 47.0...57.0

1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 14.0...20.0
 1000 s: (-)

Remarks:

: JOHN DEERE NO.

: AR 84716

Start-of-delivery mark = 13.25° after

start of delivery cyl. 1.

Note remarks

: DEE 10.1a11 : 16.5.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 045

Injection pump

Pump designation : PES6P110A720RS370

Governor

: RSV400...1050P0/444 Governor design.

Customer-spec. information

Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 40...45

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 17.6...18.0

100 s: (17.3...18.3)

cm3 : 4.0Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6.20...6.40

Del.quantity cm3/: 1.3...1..9

100 s: (-)

cm3 : 4.0Spread

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1200

: 176.0...180.0 Del.quantity

1000 : (173.0...183.0)

: 4.0 cm3 Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

ist rack travel in: 11.60

rpm : 1090...1110 Speed

2nd rack travel in: 6.60

Speed rpm : 1135...1165 4th rack travel in: 1300

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.80

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 : 400 Speed T pm

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

: 520...580 rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.60...12.70

2nd speed rpm : 630

Rack travel in m: 13.50...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 650 Pressure

Rack travel mm : 12.75...12.85

Measurement

1/min : 500 Speed

1st pressure hPa : 280

Rack travel in m: 10.30...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 630 Del.quantity cm3/ : 197.5...200.5

1000 s: (195.5...183.5)

cm3 : -Spread

1000 s: (-)

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 96.0...102.0

1000 s: (93.0...105.0)

cm3 : Spread

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0 1000 s: (-)

HIGH IDLE

1st version

rpm : 1150 Speed

Del.quantity cm3/: 55.0...65.0 1000 s: (-)

LOW IDLE

Speed rpm : 400 Del.quantity cm3/ : 13.0...19.0 1000 s: (-)

Remarks:

Start-of-delivery mank at control-rod travel 10.5 mm and 15° after start of

delivery.

Note remarks

Test sheet : DEE 10,1 a2 : 5.5.88 Edition : 2.84 Replaces Test oil : ISO-4113

Combination no. : 0 402 076 048

Injection pump

Pump designation : PES6P110A720RS370 EP type number : 0 412 016 052

Governor

Governor design. : RSV500...900P0/448DR

Governer no. : 0 421 835 100

Customer-spec. information

: JOHN DEERE Customer

: 6619 T Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.60...10.70 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 12.3...12.5

100 s: (12.0...12.8)

cm3 : 0.4Spread

100 s: (-)

2nd speed rpm : 500 Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 1.9...2.3

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 123.0...125.0 Del.quantity

1000 : (120.0...128.0)

cm3 : 4.0 Spread

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 9.60

Speed rpm: 940...950 2nd rack travel in: 6.40

rpm : 970...1030 Speed 4th rack travel in: 1100...1150 rpm : 0.30...1.00

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

Speed rpm : 500 Rack travel in mm: 5.9

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 500

Rack travel in mm : 6.30...6.50

Rack travel in mm: 2.00

rpm : 660...720 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.60...10.70

2nd speed rpm : 650

Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 138.5...141.5 1000 s: (135.5...143.5)

cm3 : 6.0Spread

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0

1000 s: (-)

Rack travel in mm : 19.0...21.0

HIGH IDLE

1st version

Speed rpm : 1000

Rack travel in mm: 6.30...6.60 Del.quantity cm3/: 47.0...57.0

1000 s: (-)

cm3 : 6.0 Spread

1000 s: (-)

LOW IDLE

rpm : 500

Rack travel in mm : 6.30...6.50

001

Del.quantity cm3/: 19.0...23.0

1000 s: (-)

cm3 : 4.0Spread

1000 s: (-)

Remarks:

: JD 850

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

APPLICATION

Tractor (tractor engines)

Note remarks

: MB 14,7 a 4 : 29.04.88 Test sheet Edition Replaces : 14.8.87 : ISO-4113 Test oil

Combination no. : 0 402 648 817

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQ300/1050PA762-5

Governer no. : 0 421 801 399

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M442 A Engine

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)
Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance - - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 650

Del.quantity : 203.0...205.0 1000 : (200.0...208.0) Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed

Rack travel in mm: 20.0 1st version Testing: Aneroid pressure h: 1050 : 1050 1st rack travel in: 12.20 Speed rpm Del.quantity cm3/: 185.0...188.0 rpm : 1095...1110 Speed 1000 s: (182.0...191.0) 2nd rack travel in: 4.00 rpm : 1170...1200 cm3 : 8.00 Spread Speed 4th rack travel in: 1300 1000 s: (12.0) Speed rpm : 0.00...1.50 Aneroid pressure h: 1050 : 700 Speed rpm Del.quantity cm3/: 215.0...219.0 LOW IDLE 1 1000 s: (212.0...222.0) Setting point w/out bumper spring cm3 : 8.00 rpm : 300° Speed Spread 1000 s: (12.0) Rack travel in mm: 6.3 Aneroid pressure h: 1050 : 850 Testing: Speed rpm rpm : 200 Del.quantity cm3/: 211.0...215.0 Speed Minimum rack trave: 8.00 1000 s: (208.0...218.0) Speed : 300 Spread cm3 : 8.00rpm Rack travel in mm : 6.20...6.40 1000 s: (12.0) Rack travel in mm : 2.00 Aneroid pressure h: -: 380...420 : 500 Speed rpm Speed rpm TORQUE CONTROL Dimension a mm : 0.75 **BREAKAWAY** : 1050 2nd speed rpm Rack travel in m: 13.20...13.40 1st version : 850 1mm rack travel less than 3rd speed rpm Rack travel in m: 14.20...14.40 4th speed rpm : 700 full load rack tr: 12.20 rpm : 1095...1110 Rack travel in m: 14.60...14.80 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test : 100 Speed rpm Del.quantity cm3/: 175.0...190.0 1st version 1000 s: (171.0...194.0) Setting : 600 Speed rom Pressure hPa : 650 Remarks: Rack travel mm : 14.10...14.30 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.40...12.60 2nd pressure hPa : 400 Rack travel in m: 13.40...1.370 3rd pressure hPa : 850 Rack travel in m: 14.20...14.30 4th pressure hPa : -Rack travel in m: 11.70...11.80 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Note remarks

: MB 14,7 a 5 Test sheet Edition : 11.03.88 Replaces : 21.12.87

Test oil : ISO-4113

Combination no. : 0 402 648 825

Injection pump

Pump designation : PE8P12OA320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQV300..1050PA797-3

Governer no. : 0 421 813 627

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C ; 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 8- 7- 2- 6- 3- 5firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + = 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.5

Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 6.2...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed travel mm : 1.20...1.40

rpm : 600 2nd speed

travel mm : 4.90...5.10

3rd speed rpm : 1075

: 7.40...7.60 travel mm

4th speed rpm : 1100

: 8.00...8.20 travel mm

5th speed rpm : 1150

travel mm : 9.00...9.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 650 : 203.0...205.0 Del.quantity 1000 : (200.0...208.0) : 5.00 Spread Cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 12.20 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Control lever position degrees: 17...25 Testing: Speed ` : 100 rpm Minimum rack trave: 7.70 : 300 rpm Rack travel in mm : 6.20...6.40 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 1.40 2nd speed rpm : 1050 Rack travel in m: 13.20...13.40 3rd speed rpm : 850 Rack travel in m: 14.20...14.40 4th speed rpm : 700 Rack travel in m: 14.60...14.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 650 Pressure : 14.10...14.30 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.40...12.60

2nd pressure hPa : 400 Rack travel in m: 13.40...13.70 3rd pressure hPa : 850 Rack travel in m: 14.20...14.30 4th pressure hPa : Rack travel in m: 11.70...11.90 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1050 Speed rpm : 1050 Del.quantity cm3/: 185.0...188.0 1000 s: (182.0...191.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1050 Speed rpm : 700 Del.quantity cm3/: 215.0...219.0 1000 s: (212.0...222.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1050 : 850 Speed rpm Del.quantity cm3/: 211.0...215.0 1000 s: (208.0...218.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm_ : 100 Speed Del.quantity cm3/: 175.0...190.0 1000 s: (171.0...194.0) Remarks:

Note remarks

: MB 21,9 z Test sheet Edition : 6.4.88 Replaces : 7.86 Test oil : ISO-4113

Injection pump Pump designation : PE12P12OA32OLS7805-1

EP type number : 0 412 620 804

Governor

Governor design. : RSV350...750POA825

Governer no. : 0 421 833 221

Customer-spec. information

: DAIMLER-BENZ Customer

: OM 422 LA Engine

1st version kW : 389.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Jutside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

; (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 12-1-5-9-8-3-4-11-10

-2-6-7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 12

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 21.0...21.2

100 s: (20.7...21.5)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 350 2nd speed

Rack travel in mm : 5.40...5.60

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 210.0...212.0 Del.quantity

1000 : (207.0...215.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 21...29

Testing:

1st rack travel in: 13.10

006

rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm : 780...790 4th rack travel in: 1000

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 9...17 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm: 350 Rack travel in mm: 5.50

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 650

Del.quantity cm3/: 207.0...213.0

1000 s: (204.0...213.0)

cm3 : 8.0 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 Speed rpm : 750...755

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 210.0...230.0

1000 s: (206.0...234.0)

Remarks:

Observe VDT-I-420/120

0

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.15...3.25 : (3.10...3.30) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : CUM 8,3 D 1 : 29.04.88 Test sheet Edition : 25.08.87 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 403 436 102 : 0.50 (0.75) Time to cyl. no. : 1 Injection pump Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 BASIC SETTING Governor rpm : 1050 Governor design. : RQV300...1050MW78 1st speed Governer no. : 0 420 083 118 Rack travel in mm : 12.60...12.70 Customer-spec. information : CUMMINS/US Del.quantity cm3/: 14.9...15.1 Customer 100 s: (14.7...15.3) Engine : 6 CTA-830 1st version kW : 175.0 Spread cm3 : 0.3: 2100 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 7.7...7.8 Test oil inlet temp. °C Del.quantity cm3/: 1.6...2.0 : 38...42 100 s: (1.4...2.2) cm3 : 0.3Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar : 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 1100 : 7.80...8.00 travel mm Opening : 207...210 2nd speed rpm : 1170 pressure, bar travel mm : 8.50...8.90 Orifice plate 3rd speed rpm : 300 : 0.80...1.20 diameter mm : 0.6 travel mm rpm : 600 4th speed : 3.20...3.80 travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 6.00x2.00x600 rpm : 1050 Speed

Aneroid pressure h: 900

Del.quantity : 149.0...151.0 1000 : (147.0...153.0) Spread cm3 : 3.50

1000 : (6,00)

RATED SPEED

1st version

D08

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.60

Speed rpm : 1120...1130

2nd rack travel in: 4.00

Speed rpm : 1205...1235 4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 7.7

Testing:

rpm : 100 Speed Minimum rack trave: 9.30

Speed rpm : 300 Rack travel in mm : 7.70...7.80

CONSTANT REGULATION

rpm : 320...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : -

Rack travel mm : 9.90...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : 300

Rack travel in m: 10.80...10.90

2nd pressure hPa : 520

Rack travel in m: 12.20...12.50 3rd pressure hPa : 900

Rack travel in m: 12.60...12.70

START CUT-OUT

1/min : 220 (230) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 800 Speed

Del.quantity cm3/: 147.0...151.0

1000 s: (145.0...153.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 88.0...90.0

1000 s: (86.0...92.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

rpm : 1120...1130 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0

1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.70...7.80 Del.quantity cm3/: 16.0...20.0 1000 s: (14.0...22.0) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after

start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.15...3.25 Prestroke mm : (3.10...3.30) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : CUM 8,3 D 3 Test sheet Edition : 29.04.88 : 06.11.87 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Combination no. : 0 403 436 104 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 BASIC SETTING Governor rpm : 1200 Governor design.: RQV350...1200MW82-1 1st speed : 0 420 083 153 Governer no. Rack travel in mm : 12.00...12.10 Customer-spec. information Del.quantity cm3/: 13.6...13.8 Customer : CUMMINS/US 100 s: (13.4...14.0) : 6 CTA-830 Engine cm3 : 0.3 1st version kW : 179.0 Spread Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 7.1...7.2 Test oil inlet temp. °C Del.quantity cm3/ : 1.2...1.6 : 38...42 100 s: (1.0...1.8) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL 1st speed rpm : 1250 : 7.60...7.80 Opening. travel mm : 207...210 2nd speed rpm : 1350 pressure, bar : 8.60...9.00 travel mm 3rd speed rpm : 350 Orifice plate : 1.20...1.60 : 0.6 travel mm diameter mm rpm : 800 4th speed : 4.90...5.50 travel mm Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version Speed rpm : 1200 Aneroid pressure h: 700 : 6.00x2.00x600 x Length mm Del.quantity : 136.0...138.0 (A) Injection pump setting values Insp. values in parentheses 1000 : (134.0...140.0) cm3 : 3.50Set equal delivery quant. Spread 1000 : (6.00) per values ____ BEGINNING OF DELIVERY RATED SPEED Test pressure, bar: 30...32

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.00

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

Speed rpm : 1370...1400

4th rack travel in: 1455

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

rpm

Rack travel in mm: 7.1

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

Speed rpm : 350 Rack travel in mm : 7.10...7.20

CONSTANT REGULATION

rpm : 360...500 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 12.00...12.10 d speed rpm : 750

2nd speed rpm : 750 Rack travel in m: 12.50...12.60

3rd speed rpm : 1000

Rack travel in m: 12.00...12.10

4th speed rpm : 900

Rack travel in m: 12.10...12.30

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

Pressure hPa : -

: 11.00...11.10 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : 390

Rack travel in m: 11.40...11.50

2nd pressure hPa : 480

Rack travel in m: 11.90...12.20

3rd pressure hPa : 700

Rack travel in m: 12.50...12.60

START CUT-OUT

Speed

1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

: 750 Speed rpm

Del.quantity cm3/: 138.5...140.5 1000 s: (135.5...143.5) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 108.0...110.0

1000 s: (106.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350

Rack travel in mm : 7.10...7.20 Del.quantity cm3/: 12.0...16.0

1000 s: (10.0...18.0) cm3 : 3.50 1000 s: (5.50)

Spread

Remarks:

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks : CUM 8.3 F : 29.04.88 Test sheet Phasing : 0-60-120-180-240-300 Edition Tolerance + - 0 Replaces : 19.02.88 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 436 105 rpm: 1200 1st speed Injection pump Rack travel in mm : 11.90...12.00 Pump designation : PES6MW100/120RS1169 EP type number : 0 413 406 153 Del.quantity cm3/: 14.1...14.3 Governor Governor design. : RQV350...1200MW78-1 100 s: (13.9...14.5) : 0 420 083 156 Governer no. Customer-spec. information Spread cm3 : 0.3Customer 100 s: (0.6) Engine : 6CTA830 rpm : 350.0 2nd speed : 197.0 Rack travel in mm: 5.6...5.8 1st version kW Del.quantity cm3/: 1.6...2,0 Rated speed : 2400 100 s: (1.4...2.2) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 assembly : 1 688 901 017 travel mm : 8.60...9.00 rpm : 1250 2nd speed 3rd speed rpm : 800 travel mm Opening : 207...210 pressure, bar travel mm : 4.90...5.50 rpm : 350 Orifice plate 4th speed : 1.20...1.60 diameter mm : 0.6 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version rpm : 1200 Outside diameter Speed x Wall thickness Aneroid pressure h: 600 : 141.0...143.0 1000 : (139.0...145.0) : 6.00x2.00x600 x Length mm Del quantity cm3 : 3.50(A) Injection pump setting values Spread 1000 : (6.00) Insp. values in parentheses Set equal delivery quant. per values RATED SPEED BEGINNING OF DELIVERY 1st version

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90

D12

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.60...3.10

: (2.95...3.15)

rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1385...1415 4th rack travel in: 1500

Speed ram : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.7

Testing:

Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm: 350

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 370...500 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : -Speed Pressure

Rack travel mm : 10.70...10.80

Measurement

1/min : 500 Speed

1st pressure hPa : 300

Rack travel in m: 11.00...11.10

2nd pressure hPa : 375

Rack travel in m: 11.50...11.80

3rd pressure hPa : 600

Rack travel in m: 11.90...12.00

START CUT-OUT

1/min : 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600

Speed rpm : 750 Del.quantity cm3/ : 137.5...141.5

1000 s: (135.0...143.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 113.5...115.5 1000 s: (111.5...117.5)

Spread

cm3 : 3.50 1000 s: (6.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 218.0...228.0

1000 s: (215.0...231.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 350 Rack travel in mm: 5.60...5.80 Del.quantity cm3/: 16.0...20.0

1000 s: (14.0...22.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : FIA 8,1 C 2 : 19.05.88 Edition Replaces : 08.84

Combination no. : 0 403 446 114

Injection pump

Pump designation : PES6MW100/720RS1012

: 0 413 406 008 EP type number

Governor

Governor design. : RQV300...1100MW19 Governor no. : 0 420 083 014

Customer-spec. information Customer

: 8365.25.500 Engine

1st version kW : 132.4 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.90...3.00 Prestroke mm

: (2.85...3.05)

Rack travel in mm : 9.0...12.0 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.60...9.80

100 s: (9.40...10.00)

Spread cm3 : 0.35

100 s: (0.6)

rpm : 300 2nd speed

Rack travel in mm: 6.3...6.4 Del.quantity cm3/: 1.1...1.5

100 s: (0.9...1.8)

cm3 : 0.35 Spread 100 s: 0.55

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1225

: 10.00...10.50 travel mm

2nd speed rpm: 1150

: 9.10...9.30 travel mm

3rd speed rpm : 500

: 2.90...3.50 travel mm

4th speed rpm : 300

: 1.10...1.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 500

: 96.0...98.0 Del.quantity

1000 : (94.0...100.0)

cm3 : 3.5 Spread 1000 : (6.0)

2nd version

rpm : 500 Speed

Aneroid pressure h: -

Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...78.0)

014

cm3 : 3.5Spread 1000 s: (6.0) RATED SPEED 1st version Control lever position degrees: 45...53 Testing: 1st rack travel in: 10.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1185...1215 5th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.3 Testing: rpm : 100 Speed Minimum rack trave: 8.0 rpm : 300 Speed Rack travel in mm : 6.30...6.40 Rack travel in mm: 2.00 rpm : 385...445 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 700 Rack travel in m: 12.40...12.50 2nd speed rpm : 1000 Rack travel in m: 11.50...11.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 270 rressure Rack travel mm : 12.10...12.20 Measurement 1/min : 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.50...11.70

2nd pressure hPa : 500 Rack travel in m: 12.40...12.50 3rd pressure hPa : -Rack travel in m: 11.20...11.30

Speed 1/min : 230 (250) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 500 Speed rpm : 700 Del.quantity cm3/ : 101.0...105.0 1000 s: (99.0...107.0) cm3 : 5.0Spread 1000 s: (7.0) Aneroid prossure h: rpm : 500 Speed Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...78.0) cm3 : 3.5 Spread 1000 s: (6.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.50 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 160 LOW IDLE rpm : 300 Speed Rack travel in mm : 6.30...6.40 Del.quantity cm3/: 11.50...15.50 1000 s: (9.0...18.0) cm3 : 3.5 Spread 1000 s: (5.5) Remarks: quantity (EES) with 12 volts

Test electrically-released starting

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 8,8 K 2 : 25.03.88 Edition : 12.02.88 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 122 Injection pump Pump designation : PES6MW100/320RS1016 : 0 413 406 010 EP type number Governor Governor design. : RQV300...1400MW25-1 Governer no. : 0 420 083 039 Customer-spec. information Customer $: \mathcal{N}^{\mathbb{Z}} \mathbf{I}$: MIDRO6.02-12 Engine 1st version kW : 125.0 Rated speed : 2800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 173...176 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1400 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 9.1...9.3 100 s: (8.9...9.5) cm3 : 0.3 Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm : 6.30...6.20 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 : 8.50...8.90 travel mm 2nd speed rpm : 1350 : 7.60...7.80 travel mm 3rd speed rpm: 500 travel mm : 3.00...3.40 4th speed rpm : 300 : 1.10...1.70 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1400 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1400 Speed Aneroid pressure h: 500

Del.quantity : 91.5...93.5

1000 : (89.5...95.5)

Spread cm3 : 3.50 1000 : (6.00) RATED SPEED

Firing order

: 1-5-3-6-2-4

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.00...3.10

: (2.95...3.15)

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 10.10

rpm : 1455...1465 Speed

2nd rack travel in: 4.00

Speed rpm : 1575...1605

4th rack travel in: 1700

rpm : 1.00...0.00 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.2 rpm : 300 Speed

Rack travel in mm : 5.90...5.80

Rack travel in mm : 2.00

rpm : 490...550 Speed

Speed rpm : 200 Maximum rack trave: 7.50

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 500 Pressure

Rack travel mm : 11.10...11.20

Measurement

1/mir.: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.80...9.70

2nd pressure hPa : 200

Rack travel in m: 10.30...10.20

3rd pressure hPa : 230

Rack travel in m: 10.90...10.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500 rpm : 900 Speed

Del.quantity cm3/: 87.5...91.5 1000 s: (85.5...93.5) Spread cm3: 5.00

1000 s: (7.0)

Aneroid pressure h: -

D17

Speed rpm : 500 Del.quantity cm3/ : 56.0...58.0 1000 s: (53.5...60.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1455...1465 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 94.0...104.0

1000 s: (91.0...107.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.30...6.20

Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark is 8° after start of delivery with control-rod

travel = 10.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : 0-60-120-180-240-300 Test sheet : RVI 8,8 K Phasing Edition : 25.03.88 Tolerance + - D : 12.02.88 : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 123 1st speed rpm: 1300 Injection pump Pump designation : PES6MW100/320RS1016 Rack travel in mm : 11.10...11.20 EP type number : 0 413 406 010 Governor Del.quantity cm3/: 8.9...9.1 Governor design. : RQV300...1300MW25 100 s: (8.7...9.3) Governer no. : 0 420 083 030 Customer-spec. information cm3 : 0.3Spread : RVI Customer 100 s: (0.6) : MIDRO6.02-12 Engine rpm : 300.0 2nd speed Rack travel in mm : 5.80...5.70 : 125.0 1st version kW : 2600 Del.quantity cm3/: 0.9...1.3 Rated speed 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 : 8.50...8.90 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1350 Test nozzle holder : 7.60...7.80 travel mm : 0 681 343 009 3rd speed rpm : 500 assembly travel mm : 3.00...3.40 4th speed rpm : 300 Opening : 1.10...1.70 pressure, bar : 173...176 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1300 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1300 per values Aneroid pressure h: 665 : 89.5...91.5 Del.quantity 1000 : (87.5...93.5) BEGINNING OF DELIVERY cm3 : 3.50Test pressure, bar: 30...32 Spread 1000 : (6.00) : 3.00...3.10 Prestroke mm : (2.95...3.15) RATED SPEED

Rack travel in mm : 9.00...12.00

D18

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 10.10

Speed rpm: 1370...1380 2nd rack travel in: 3.90

Speed rpm : 1495...1525

4th rack travel in: 1650

Speed rpm : 1.00...0.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm: 300
Rack travel in mm: 5.9
Speed rpm: 300
Rack travel in mm: 5.90...5.80
Speed rpm: 200
Maximum rack trave: 3.60

CONSTANT REGULATION

Speed rpm : 340...600

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 665 Pressure

Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.90...9.80

2nd pressure hPa : 200

Rack travel in m: 10.30...10.20

3rd pressure hPa : 230

Rack travel in m: 10.90...10.70

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 665

Speed rpm : 900
Del.quantity cm3/: 85.0...89.0
1000 s: (83.0...91.0)
Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

D19

Del.quantity cm3/: 56.0...58.0

1000 s: (54.0...60.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 95.0...105.0 1000 s: (90.0...110.0)

LOW IDLE

Speed rpm: 300 Rack travel in mm: 5.80...5.70 Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1-5- 3- 6- 2- 4 Note remarks : IHC 7,6 D Test sheet Edition : 06.04.88 Replaces : 12.85 : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 403 446 136 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1107 EP type number : 0 413 406 105 rpm: 800 1st speed Governor Rack travel in mm : 11.80...11.90 Governor design.: RQV350...1200MW43-2 Governer no. : 0 420 083 055 Del.quantity cm3/: 9.4...9.6 Customer-spec. information 100 s: (9.2...9.8) Customer : NAVISTAR cm3 : 0.3Engine : DT466C Spread 1st version kW : 132.4 100 s: (0.6) Rated speed : 2400 2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.6...2.0 TEST BENCH REQUIREMENTS 100 s: (1.3...2.2) cm3 : 0.3 Test oil inlet temp. °C : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 Test nozzle holder travel mm : 9.30...9.70 : 1 688 901 016 assembly 2nd speed rpm : 1250 travel mm : 8.20...8.40 Opening : 207...210 3rd speed rpm : 550 pressure, bar travel mm : 2.90...3.50 rpm : 350 Orifice plate 4th speed diameter mm : 0.5 travel mm : 1.30...1.70 GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

Control-lever position
Degree: -1
Speed rpm: 1355
Rack travel in mm: 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm: 800
Aneroid pressure h: 900
Del.quantity: 94.5...96.5
1000: (92.5...98.5)
Spread cm3: 3.50
1000: (6.00)

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

RATED SPEED

1st version

Control lever

position degrees: 59...64

2nd rack travel in: 4.00 Speed rpm : 1375...1385

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 11...19

Setting point w/out bumper spring

rpm : 350° Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 Speed rpm : 350

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 370...650 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 hPa : 175 Pressure

Rack travel mm : 10.70...10.80

Measurement

Speed 1/min: 500

1st pressure hPa : 900

Rack travel in m: 11.80...11.90

2nd pressure hPa : -

Rack travel in m: 10.40...10.50

3rd pressure hPa : 390

Rack travel in m: 11.40...11.70

START CUT-OUT

1/min : 220 (210) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1200

Del.quantity cm3/: 96.0...100.0 1000 s: (94.0...102.0)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 70.0...72.0

1000 s: (68.0...74.0)

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 6,1 H : 29.04.88 Edition : 19.02.88 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 152 Injection pump Pump designation : PES6MW100/320RS1119 EP type number : 0 413 406 113 Governor Governor design. : RQV300...1400MW57 Governer no. : 0 420 083 078 Customer-spec. information : VOLVO Customer : TD 61-3012 Engine : 132.0 1st version kW Rated speed : 2800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 9.0...9.2

100 s: (8.8...9.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.9...7.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1580 : 9.50...9.90 travel mm

2nd speed rpm : 1450 : 8.40...8.60 travel mm

3rd speed rpm : 550 travel mm : 3.40...4.00

4th speed rpm : 300

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1480 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 700

Del.quantity : 90.0...92.0 1000 : (88.0...94.0)

: 3.50 cm3 Spread 1000 : (6.00)

RATED SPEED

022

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 10.60 rpm : 1440...1450 Speed

2nd rack travel in: 4.00

Speed rpm : 1595...1625 4th rack travel in: 1725 rpm : 0.10...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 12...20

Setting point W/out bumper spring

rpm : 300° Rack travel in mm: 6.9

Testing:

rpm : 100 Speed Minimum rack trave: 8.50 rpm : 300 Speed

Rack travel in mm : 6.90...7.00

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 550 Speed hPa : 460 Pressure

Rack travel mm : 11.20...11.30

Measurement

1/mir. : 550 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20

2nd pressure hPa : 350

Rack travel in m: 10.30...10.60

3rd pressure hPa : 700

Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 1000 Speed

Del.quantity cm3/: 75.0...77.0

1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

D23

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0

1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.90...7.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOIL 6,1 G : 29.04.88 Edition : 19.02.88 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 153 Injection pump Pump designation : PES6MW100/320RS1119-: 0 413 406 114 EP type number Governor Governor design. : RQV300..1400MW57-1 Governer no. : 0 420 083 079 Customer-spec. information Customer : VOLVO : TD 61..3012 Engine 1st version kW : 150.0 Rated speed : 2800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Jutside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Test pressure, bar: 30...32 Prestroke mm : 3.10...3.20 : (3.05...3.25)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm : 1000 1st speed Rack trave: in mm : 12.00...12.10 Del.quantity cm3/: 10.4...10.6 100 s: (10.3...10.9) cm3 : 0.3 Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.3...6.4 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1580 travel mm : 9.50...9.90 2nd speed rpm : 1450 : 8.40...8.60 travel mm 3rd speed rpm : 550 travel mm : 3.40...4.00 4th speed rpm : 300 travel mm : 1.20...1.60 GUIDE SLEEVE - OSITION Control-lever position Degree: -1 rpm : 1480 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

Speed rpm : 1000 Aneroid pressure h: 700 Del.quantity : 104.0...106.0 1000 : (103.0...109.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 11.00

rpm : 1440...1450 Speed

2nd rack travel in: 4.00

Speed rpm : 1590...1620

4th rack travel in: 1700

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Setting point W/out bumper spring

rpm : 300 Speed Rack travel in mm : 6.3

Testing:

Speed rpm : 100 Minimum rack trave: 7.90

Speed rpm: 300 Rack travel in mm: 6.30...6.40

Aneroid/Altitude Compensator Test

1st version

Setting Speed

rpm : 550 hPa : 470 Pressure

Rack travel mm : 11.80...11.90

Measurement

1/min : 550 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20

2nd pressure hPa : 240

Rack travel in m: 10.30...10.60

3rd pressure hPa : 700

Rack travel in m: 12.00...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 1000 Speed

Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100 BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (137.0...163.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 300 Rack travel in mm: 6.30...6.40 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

:

Remarks:

025

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: RVI 8,8 K 5 Test sheet : 25.03.88 Edition : 12.02.88 Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 165

Injection pump

Pump designation : PES6MW100/320RS1016

EP type number : 0 413 406 010

Governor

Governor design. : RQV300...1300MW25-5

: 0 420 083 095 Governer no.

Customer-spec. information Customer

: MIDRO6.02-12 F Engine

: 125.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 173...176

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

cm3 : 0.3 Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 5.3...5.4 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

: 8.50...8.90 travel mm

rpm : 1350 2nd speed

: 7.60...7.80 travel mm

rpm : 500 3rd speed

: 3.00...3.40 travel mm

rpm : 300 4th speed

: 1.10...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1300 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 665

: 89.5...91.5 Del.quantity 1000 : (87.5...93.5)

cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.10

Speed rpm : 1370...1380

2nd rack travel in: 3.90

Speed rpm : 1495...1525 4th rack travel in: 1650 Speed rpm : 1.00...0.00

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 300°

Rack travel in mm: 5.2

Speed rpm : 300

Rack travel in mm : 5.90...5.80 Speed rpm : 200

Maximum rack trave: 3.60

CONSTANT REGULATION

rpm : 340...600 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 665 Pressure

Rack travel mm : 11.10...11.20

Measurement

1/mir.: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...9.80

2nd pressure hPa : 200

Rack travel in m: 10.30...10.20
3rd pressure hPa : 230
Rack travel in m: 10.90...10.80

START CUT-OUT

1/min : 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 665

Speed rpm : 900
Del.quantity cm3/ : 86.5...90.5

1000 s: (84.5...92.5)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

027

Speed rpm : 500

Del.quantity cm3/: 56.0...58.0

1000 s: (54.0...60.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1370...1380 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 95.0...105.0

1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.80...5.70 Del.quantity cm3/: 9.5...13.5

1000 s: (7.0...16.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark is at 8° after

start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm: 9.00...12.00 Firing order: 1-5-3-6-2-4 Note remarks : IHC 7,6 R11 Test sheet : 06.04.88 Edition : 19.02.88 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 403 446 174 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1140 : 0 413 406 135 rpm: 800 EP type number 1st speed Governor Rack travel in mm : 11.40...11.50 Governor design.: RQV350...1200MW46-7 : 0 420 083 107 Governer no. Del.quantity cm3/: 9.1...9.3 Customer-spec. information Customer : NAVISTAR 100 s: (8.9...9.5) Engine : DT-466 C Spread cm3 : 0.31st version kW : 134.0 100 s: (0.6) : 2400 Rated speed 2nd speed rpm : 350.0 Rack travel in mm: 6.6...6.7 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 Test oil 100 s: (1.3...2.2) inlet temp. OC cm3 : 0.3: 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1250 travel mm : 7.80...8.00 Test nozzle holder : 1 688 901 016 assembly 2nd speed rpm: 1340 travel mm : 8.80...9.20 Opening 3rd speed rpm : 500 : 207...210 pressure, bar : 2.60...3.20 travel mm 4th speed rpm : 350 Orifice plate diameter mm : 0.5 travel mm : 1.30...1.80 GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 Outside diameter Speed rpm : 1380 x Wall thickness Rack travel in mm : 6.60...9.40 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 800 Set equal delivery quant. Speed

Aneroid pressure h: 700

Del.quantity : 91.5...93.5 1000 : (89.5...95.5) Spread cm3 : 3.50

1000 : (6.00)

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

per values

RATED SPEED 1st version Control lever position degrees: 45...50 Testing: 1st rack travel in: 10.40 rpm : 1240...1260 Speed 2nd rack travel in: 4.00 rpm : 1360...1370 4th rack travel in: 1450 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring rpm : 350 Rack travel in mm : 6.6 Testing: Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 6.60...6.70 CONSTANT REGULATION rpm : 370...500 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 170 Pressure : 10.30...10.40 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 310 Rack travel in m: 10.60...10.90
3rd pressure hPa : 700 Rack travel in m: 11.40...11.50

START CUT-OUT 1/min : 280 (290) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700

rpm : 1200 Speed Del.quantity cm3/: 94.0...98.0 1000 s: (92.0...100.0) cm3 : 6.50 Spread

1000 s: (7.0) Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 66.0...68.0 1000 s: (64.0...70.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 rpm : 1240...1260 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

:

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

E01

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : MB 6,0 D 26 : 0-60-120-180-240-300 Test sheet Phasing : 29.04.88 Edition Tolerance + - 0 : 0.50 (0.75) Replaces : 10.08.87 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 177 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 11.00...11.10 : 0 413 406 138 EP type number Del.quantity cm3/ : 7.7...7.9 Governor Governor design. : RQV300...1300MW48 Governer no. : 0 420 083 066 100 s: (7.5...8.1) Customer-spec. information Spread cm3 : 0.3: DB Customer 100 s: (0.6) : 0M366A Engine 2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 1st version kW : 125.0 Del.quantity cm3/: 0.9...1.3 : 2600 Rated speed 100 s: (0.6...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s; (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 8.50...8.70 Inlet press., bar : 1.50 travel mm 2nd speed rpm : 1450 : 9.30...9.70 Test nozzle holder travel mm 3rd speed rpm : 500 assembly : 0 681 343 009 : 2.70...3.30 travel mm 4th speed rpm : 300 Opening : 1.20...1.70 pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION : 1 680 750 015 Test lines Control-lever position Degree: -1 rpm : 1350 Outside diameter Speed Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed : 77.0...79.0 Del.quantity per values 1000 : (75.0...81.0) cm3 : 3.50 BEGINNING OF DELIVERY Spread 1000 : (6.00) Test pressure, bar: 30...32 : 3.70...3.80 RATED SPEED Prestroke mm *:* (3.65...3.85)

1st version

Rack travel in mm : 9.00...12.00

E03

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.00

Speed rpm : 1340...1350

2nd rack travel in: 4.00 Speed rpm: 1425...1455 4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

' rpm : 300' Rack travel in mm: 7.8

Testing:

rpm : 100 Speed

Minimum rack trave: 8.70

Speed rpm : 300 Rack travel in mm : 7.80...7.90

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.00...11.10

2nd speed rpm : 800

Rack travel in m: 11.80...12.00

3rd speed rpm : 585

Rack travel in m: 12.00...12.20

4th speed rpm : 1100

Rack travel in m: 11.00...11.10

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0)

Spread

cm3 : 5.00 1000 s: (7.0)

Speed rpm : 585 Del.quantity cm3/ : 68.5...71.5

1000 s: (66.0...74.0)

cm3 : 5.00 Spread

1000 s: (7.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 7.80...7.90

Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 R14 Edition : 06.04.88 Replaces : 19.02.88 Test oil : ISO-4113 Combination no. : 0 403 446 183 Injection pump Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 Governor Governor design. : RQV350...1300MW46-11 : 0 420 083 120 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DT-466 C 1st version kW : 154.5 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 016 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0.5 Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00,...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.7...5.8 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

: 9.10...9.50 travel mm

3rd speed rpm : 550 travel mm : 3.10...3.70

4th speed rpm : 350 : 1.30...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1510

Speed Rack travel in mm: 6.60...9.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 700

Del.quantity : 106.5...108.5 1000 : (104.5...110.5) Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...50

Setting point:

Speed rpm: 1510 Rack travel in mm: 8.0

Testing:

1st rack travel in: 10.00

rpm : 1345...1365 Speed

2nd rack travel in: 4.00

Speed rpm : 1455...1465

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 5.7

Testing:

rpm : 100 Speed Minimum rack trave: 9.00

Speed rpm : 350

Rack travel in mm : 5.70...5.80

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 170 Pressure

Rack travel mm : 10.20...10.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.00

2nd pressure hPa : 315

Rack travel in m: 10.60...10.90
3rd pressure hPa : 700

Rack travel in m: 11.00...11.10

START CUT-OUT

1/min : 220 (210) Speed

FUEL DELIVERY CHARACTERISTICS

E06

1st version

Aneroid pressure h: 700

Speed rpm : 1300 Del.quantity cm3/ : 108.0...112.0 1000 s: (106.0...114.0)

cm3 : 6.50Spread

1000 s: (7.0)

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 81.5...83.5 1000 s: (79.5...85.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1345...1365 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : MB 6.0 D 34 : 0-60-120-180-240-300 Test sheet Phasing : 29.04.88 Edition Tolerance + - 0 : 10.04.87 : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 184 1st speed rpm : 1300 Injection pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 10.90...11.00 EP type number : 0 413 406 138 Governor Del.quantity cm3/: 7.2...7.4 Governor design. : RQV300...1300MW48-3 Governer no. : 0 420 083 121 100 s: (7.0...8.6) cm3 : 0.3Customer-spec. information Spread Customer 100 s: (0.6) : 0M366A Engine 2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 : 125.0 1st version kW Del.quantity cm3/: 0.9...1.3 : 2600 Rated speed 100 s: (0.6...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 8.50...8.70 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1450 : 9.30...9.70 Test nozzle holder travel mm : 0 681 343 009 3rd speed rpm : 500 assembly : 2.70...3.30 travel mm 4th speed rpm : 300 Opening : 172...175 travel mm : 1.20...1.70 pressure, bar GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1350 Outside diameter Speed Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed per values ___ Del quantity : 72.0...74.0 1000 : (70.0...86.0) BEGINNING OF DELIVERY : 3.50 Spread cm3 Test pressure, bar: 30...32 1000 : (6.00) : 3.70...3.80 Prestroke mm RATED SPEED : (3.65...3.85)

1st version

Rack travel in mm : 19.00...21.00

E08

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.90

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1425...1455

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 300

Rack travel in mm: 7.8

Testing:

Speed rpm : 100

Minimum rack trave: 9.30

Speed rpm : 300 Rack travel in mm : 7.80...7.90

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.90...11.00

2nd speed rpm : 800

Rack travel in m: 11.60...11.80

3rd speed rpm : 585

Rack travel in m: 11.80...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/ : 71.0...73.0

1000 s: (69.0...75.0) cm3 : 5.00

Spread

1000 s: (7.0)

Speed rpm : 585 Del.quantity cm3/ : 65.0...68.0

1000 s: (62.5...70.5)

cm3 : 5.00Spread

1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.80...7.90

Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

E09

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : IHC 7,6 R15 : 06.04.88 Test sheet Edition Replaces : 19.02.88 : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 Combination no. : 0 403 446 185 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1140 : 0 413 406 135 rpm : 800 EP type number 1st speed Governor Governor design.: RQV350...1200MW72-1 Rack travel in mm : 11.40...11.50 : 0 420 083 122 Governer no. Del.quantity cm3/ : 9.1...9.3 Customer-spec. information 100 s: (8.9...9.5) Customer : NAVISTAR : DT-466 C cm3 : 0.3 Engine Spread 1st version kW : 134.0 100 s: (0.6) : 2400 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.6...6.7 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. OC cm3 : 0.3: 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1250 Test nozzle holder assembly : 1 688 901 016 travel mm : 7.80...8.00 2nd speed rpm : 1340 : 8.80...9.20 Opening travel mm 3rd speed rpm : 500 travel mm : 2.60...3.20 4th speed rpm : 350 pressure, bar : 207...210 Orifice plate diameter mm : 1.30...1.80 : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1510 Outside diameter Speed Rack travel in mm : 6.70...9.30 x Wall thickness : 6.00x2.00x600

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 800 Speed : 91.5...93.5 Del.quantity 1000 : (89.5...95.5) cm3 : 3.50 Spread 1000 : (6.00)

x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

RATED SPEED

1st version

Control lever

position degrees: 42...47

Testing:

1st rack travel in: 10.40

rpm : 1250...1270 Speed

2nd rack travel in: 4.00

rpm : 1360...1370 Speed

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.6

Testing:

rpm : 100 Speed Minimum rack trave: 9.00

rpm : 350 Speed

Rack travel in mm : 6.60...6.70

CONSTANT REGULATION

rpm : 370...500 Speed

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

: 1200 Speed rpm

Del.quantity cm3/: 94.0...98.0

1000 s: (92.0...100.0)

Spread cm3 : 6.50

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1250...1270

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

E11

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 8,8 Q : 22.04.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 190 Injection pump Pump designation : PES6MW100/320RS1154 EP type number : 0 413 406 144 Governor Governor design. : RQV275...1250MW80 Governer no. : 0 420 083 128 Customer-spec. information Customer : RVI : MIDR 060226 Engine 1st version kW : 128.7 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY

: 9-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm : 250 1st speed Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 9.9...10.1 100 s: (9.7...10.3) cm3 : 0.3Spread 100 s: (0.6) rpm : 275.0 2nd speed Rack travel in mm : 6.0...5.8 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 travel mm : 9.20...9.60 2nd speed rpm : 1300 travel mm : 7.80...8.00 3rd speed rpm : 500 : 3.00...3.60 travel mm 4th speed rpm : 275 : 1.00...1.40 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1300 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 800 Del.quantity : 99.5...101.5 1000 : (97.5...103.5) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED

Firing order

: 1-5-3-6-2-4

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.50...3.60

: (3.45...3.65)

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.90 rpm : 1330...1350 Speed 2nd rack travel in: 3.90 Speed rpm : 1490...1530 4th rack travel in: 1600 rpm : 1.00...0.00 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 275 Rack travel in mm: 7.0 Testing: Speed rpm : 200 Minimum rack trave: 8.50 Speed rpm : 275 Rack travel in mm : 6.00...5.80 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Rack travel mm : 10.90...10.80 Measurement Speed 1/min: 500 1st pressure hPa : 170 Rack travel in m: 11.50...11.40 2nd pressure hPa : 360 Rack travel in m: 12.40...12.30 3rd pressure hPa : 800 Rack travel in m: 12.90...13.00 START CUT-OUT Speed 1/min : 200 (220) FUEL DELIVERY CHARACTERISTICS

Speed 1/min: 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm: 700
Del.quantity cm3/: 90.0...94.0
1000 s: (88.0...96.0)
Spread cm3: 5.00
1000 s: (7.0)
Aneroid pressure h: Speed rpm: 500

Del.quantity cm3/: 47.0...49.0 1000 s: (45.0...51.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 1330...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...140.0 1000 s: (117.0...143.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.00...5.80
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.0...22.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

E13

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7.6 S : 06.04.88 Test sheet Edition Replaces Test oil : 19.02.88 : ISO-4113 Combination no. : 0 403 446 193 Injection pump Pump designation : PES6MW100/320RS1159 EP type number : 0 413 406 146 Governor Governor design. : RQV350...1300MW72-3 Governer no. : 0 420 083 142 Customer-spec. information : NAVISTAR Customer : DT-466 Engine 1st version kW : 136.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar : 2.80 Test nozzle holder : 1 688 901 016 assembly Opening pressure, bar : 207...210 Orifice plate : 0.5 diameter mm Test lines : 1 680 750 008 Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.4...6.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250 : 7.80...8.00 travel mm

2nd speed rpm : 1340

travel mm : 8.80...9.20

3rd speed rpm : 500
 travel mm : 2.60...3.20

4th speed rpm : 350
 travel mm

: 1.30...1.80 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1500 Speed

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 90.0...92.0 Del.quantity 1000 : (88.0...94.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...51

Testing:

1st rack travel in: 9.60

rpm : 1370...1390 Speed

2nd rack travel in: 4.00

Speed rpm : 1475...1485

4th rack travel in: 1550 Speed rpm: 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.4

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

rpm : 370...500 Speed

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1300 Speed

Del.quantity cm3/: 94.0...98.0

1000 s: (92.0...100.0)

cm3 : 6.50 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

rpm : 1370...1390 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

E15

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.40...6.50 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : IHC 7.6 R24 : 22.04.88 Test sheet Edition Replaces : 10.08.87 : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Combination no. : 0 403 446 197 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1112 rpm: 800 EP type number : 0 413 406 108 1st speed Governor Governor design. : RQV350...1200MW46-15 Rack travel in mm : 11.00...11.10 : 0 420 083 146 Governer no. Del.quantity cm3/ : 9.9...10.1 Customer-spec. information 100 s: (9.7...10.3) Customer : NAVISTAR cm3 : 0.3Engine : DTA-466 Spread 1st version kW : 158.0 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed Rack travel in mm: 6.3...6.4 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5) Test oil inlet temp. OC : 38...42 Spread cm3 : 0.3100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 . Test nozzle holder : 8.30...8.50 : 1 688 901 016 travel mm assembly 2nd speed rpm : 1460 travel mm : 9.10...9.50 Opening 3rd speed rpm : 550 : 207...210 pressure, bar : 3.10...3.70 travel mm 4th speed rpm : 350 Orifice plate travel mm diameter mm : 0.5 : 1.30...1.70 GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1380 Outside diameter Speed x Wall thickness Rack travel in mm : 6.70...9.30 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 800 Speed Aneroid pressure h: 800 per values ____ Del.quantity : 99.0...101.0 1000 : (97.0...103.0) Spread cm3 : 3.50 BEGINNING OF DELIVERY

1000 : (6.00)

Test pressure, bar: 30...32

RATED SPEED

1st version Control lever

position degrees: 43...48

Testing:

1st rack travel in: 10.00

Speed rpm : 1270...1290

2nd rack travel in: 4.00

Speed rpm : 1380...1390

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 6.3

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

Speed rpm : 350

Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 200

Rack travel mm : 10.70...10.80

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.40...10.50

2nd pressure hPa : 280

Rack travel in m: 10.80...11.10

3rd pressure hPa : 800

Rack travel in m: 11.00...11.10

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

£17

Speed rpm : 1200

Del.quantity cm3/: 101.0...105.0

1000 s: (99.0...107.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 84.0...86.0

1000 s: (82.0...88.0)

BREAKAWAY

1st versica

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 140.0...160.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 350

Rack travel in mm : 6.30...6.40

Del.quantity cm3/ : 19.0...23.0

1000 s: (16.5...25.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose

with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 : (3.95...4.15) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : IHC 7,6 T 1 Edition : 06.04.88 : 19.02.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 403 446 199 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1160 EP type number : 0 413 406 147 rpm : 800 1st speed Governor Rack travel in mm : 11.30...11.40 Governor design. : RQV350...1200MW46-17 Governer no. : 0 420 083 148 Del.quantity cm3/: 10.1...10.3 Customer-spec. information 100 s: (9.9...10.5) Customer : NAVISTAR cm3 : 0.3: DTA-466 Engine Spread : 154.5 100 s: (0.6) 1st version kW : 2400 Rated speed rpm : 350.0 2nd speed Rack travel in mm: 6.3...6.4 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. OC cm3 : 0.3: 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 Test nozzle holder : 1 688 901 016 : 8.30...8.50 assembly travel mm 2nd speed rpm : 1460 : 9.10...9.50 Opening travel mm 3rd speed rpm : 550 travel mm : 3.10...3.70 4th speed rpm : 350 : 207...210 pressure, bar Orifice plate : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1410 Outside diameter Speed Rack travel in mm : 6.60...9.40 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 800 Set equal delivery quant. Speed Aneroid pressure h: 800 per values Del.quantity : 101.0...103.0 1000 : (99.0...105.0) BEGINNING OF DELIVERY cm3 : 3.50 Test pressure, bar: 30...32 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 10.30

Speed rpm : 1260...1280

2nd rack travel in: 4.00 Speed rpm : 1375...1385

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.3

Testing:

rpm : 100 Speed Minimum rack trave: 9.00

Speed rpm : 350

Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 190 Pressure

Rack travel mm : 10.60...10.70

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.30

2nd pressure hPa : 290

Rack travel in m: 10.90...11.20

3rd pressure hPa : 800

Rack travel in m: 11.30...11.40

START CUT-OUT

1/min : 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

E20

Speed rpm : 1200
Del.quantity cm3/ : 104.0...108.0

1000 s: (102.0...110.0)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 75.5...77.5 1000 s: (73.5...79.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.8...180.0

1000 s: (137.0...183.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.30...6.40

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose

with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff. E21

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CUM 8,3 C 2 Test sheet Edition : 06.04.88 : 21.08.87 Replaces Test oil : ISO-4113

Combination no. : 0 403 466 103

Injection pump

Pump designation : PES6MW100/120RS1137

EP type number : 0 413 406 131

Governor

Governor design. : RSV425...1100MW2A319

: 0 420 085 062 Governer no.

Customer-spec. information : CUMMINS/US Customer

: 6 CTA-8.3 L Engine

: 188.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

cm3 : 0.3 Spread

100 s: (0.6)

2nd speed rpm : 425.0 Rack travel in mm : 7.8...7.9 Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 142.0...144.0 1000 : (140.0...146.0) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 13.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1215...1245 Speed 4th rack travel in: 1300

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 18...26 Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm : 7.8

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 425

Rack travel in mm : 7.80...7.90

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 14.10...14.20

2nd speed rpm : 750

Rack travel in m: 14.80...14.90

3rd speed rpm : 900

Rack travel in m: 14.50...14.70

FUEL DELIVERY CHARACTERISTICS

1st version

rpm_ : 750 Speed

Del.quantity cm3/: 148.5...150.5 1000 s: (146.5...152.5)

cm3 : 5.00

Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 425 Rack travel in mm : 7.80...7.90

E23

Del.quantity cm3/ : 19.0...23.0

1000 s: (16.5...25.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1 Starting/full-load transition speed from holding magnet = 500 1/min.

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks : MB 6.0 D 8 : 19.05.88 Test sheet : 0-60-120-180-240-300 Edition Phasing : 28.10.86 Replaces Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 403 476 040 BASIC SETTING rpm : 700 Injection pump 1st speed Pump designation : PES6MW100/720RS1130 EP type number : 0 413 406 122 Rack trave! in mm : 13.00...13.10 Governor Governor design. : RSV350...750MWOA318-Del.quantity cm3/: 8.0...8.2 100 s: (7.8...8.4) : 0 420 085 055 Governer no. Spread cm3 : 0.3Customer-spec. information Customer 100 s: (0.6) : 0M366A Engine 2nd speed rpm : 350.0 Rack travel in mm : 7.5...7.6 1st version kW : 84.0 Del.quantity cm3/: 0.9...1.3 : 1500 Rated speed 100 s: (0.7...1.5) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 Speed rpm : 800 Rack travel in mm: 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 700 Speed : 80.0...82.0 Opening Del.quantity 1000 : (78.0...84.0) cm3 : 3.50 pressure, bar : 172...175 Spread 1000 : (6.00) Test lines : 1 680 750 015 RATED SPEED Jutside diameter x Wall thickness

: 6.00x1.50x600

: (3.65...3.85)

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

BEGINNING OF DELIVERY

1st version Control lever

position degrees: 24...32

Setting point: Speed rpm

Speed rpm : 800 Rack travel in mm : 0.6

Testing:
1st rack travel in: 12.0
Speed rpm: 750...755
2nd rack travel in: 4.00
Speed rpm: 775...788

E24

x Length mm

4th rack travel in: 800 Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 11...19 Setting point wout bumper spring

Speed rpm : 350 Rack travel in mm : 7.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 7.50...7.60

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.0 rpm : 750...755 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.50...7.60 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

When setting the governor, the throttle screw of damper 1 must be open 1 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 d 6 : 19.05.88 Edition Replaces : 11.85

: ISO-4113 Test oil

Combination no. : 0 403 476 041

Injection pump

Pump designation : PES6MW100/720RS1129

: 0 413 406 121 EP type number

Governor

Governor design. : RSV350...750MW0A318-

: 0 420 085 056 Governer no.

Customer-spec. information

Customer

: OM 366 LA Engine

1st version kW : 94.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack trave: in mm : 12.50...12.60

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.1...6.2 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 85.0...87.0 Del.quantity 1000 : (83.0...89.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.50

Speed rpm : 750...755 2nd rack travel in: 4.00

rpm : 755...788 Speed

4th rack travel in: 820 Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 10...18 Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 6.10...6.20

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

rpm : 350 Speed Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

When setting the governor, the throttle screw of damper 1 must be open 1 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 5.7 A 13 : 19.05.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 049

Injection pump

Pump designation : PES6MW100/720RS1125-

EP type number : 0 413 406 132

Governor

Governor design. : RSV600...1300MW0A320

: 0 420 085 060 Governer no.

Customer-spec. information

: DB Customer

: 0M 362 LA Engine

1st version kW : 134.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1280 1st speed

Rack trave! in mm : 11.80...11.90

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 600.0 Rack travel in mm : 5.6...5.7 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

cm3 : 0.3\$pread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

: 96.0...98.0 Del.quantity 1000 : (94.0...100.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.80

rpm : 1330...1340 Speed

2nd rack travel in: 4.00

rpm : 1400...1430 Speed

E28

4th rack travel in: 1560 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 600

Testing:

rpm : 100 Speed ` Minimum rack trave: 19.00 Speed : 600 rpm Rack travel in mm : 5.60...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

Rack travel in mm: 5.6

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm Del.quantity cm3/: 86.0...90.0 1000 s: (84.0...92.0)

cm3 : 5.00Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80

rpm : 1330...1340 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

rpm : 600 Speed

Rack travel in mm : 5.60...5.70 Del.quantity cm3/ : 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 43 : 19.05.88 : 0-60-120-180-240-300 Edition Phasing Replaces Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 403 476 054 BASIC SETTING Injection pump rpm : 1200 1st speed Pump designation : PES6MW100/720RS1144 : 0 413 406 138 Rack travel in mm : 11.80...11.90 EP type number Governor Del.quantity cm3/: 7.8...8.0 Governor design. : RSV350...1200MW0A316 : 0 420 085 092 100 s: (7.6...8.2) Governer no. cm3 : 0.3Spread Customer-spec. information Customer 100 s: (0.6) Engine : 0M366A 2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6 1st version kW : 115.0 Del.quantity cm3/: 0.9...1.1 Rated speed : 2400 100 s: (0.6...1.4) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C GUIDE SLEEVE POSITION : 38...42 Control-lever position Overflow valve Degree: -3 rpm : 800 : 1 417 413 047 Speed Rack travel in mm: 0.30...1.00 Inlet press., bar: 1.50 Governor spring pre-tension Click setting x : 3.00 Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version Speed Del.quantity Test lines : 1 680 750 015 cm3 Spread Outside diameter x Wall thickness : 6.00x1.50x600 RATED SPEED x Length mm

1st version
Speed rpm: 1200
Del.quantity: 78.0...80.0
1000: (76.0...82.0)
Spread cm3: 3.50
1000: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 63...71

Setting point:
Speed rpm: 800
Rack travel in mm: 0.6

Testing:
1st rack travel in: 10.80

F02

(A) Injection pump setting values

Set equal delivery quant.

per values

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

BEGINNING OF DELIVERY

Insp. values in parentheses

rpm : 1240...1245 Speed 2nd rack travel in: 4.00 Speed rpm : 1285...1298 3rd rack travel in: 4.00 rpm : 1320...1350 Speed 4th rack travel in: 1450 rpm : 0.30...1.70 Speed 5th rack travel in: 1240...1255 rpm : 10.80 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.3 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 7.00...7.60 Rack travel in mm: 2.00 rpm : 445...505 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 11.80...11.90 2nd speed rpm : 750 Rack travel in m: 12.30...12.40 3rd speed rpm : 1000 Rack travel in m: 11.90...12.10 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 72.0...74.0 1000 s: (70.0...76.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.80 rpm : 1240...1245 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00 LOW IDLE

F03

Speed rpm : 350
Rack travel in mm : 7.00...7.60
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 32 Edition : 02.11.87 Phasing : 0-60-120-180-240-300 Replaces : 05.02.88 Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 403 476 054 BASIC SETTING Injection pump rpm: 1200 1st speed Pump designation : PES6MW100/720RS1144 : 0 413 406 138 Rack trave! in mm : 9.60...9.70 EP type number Governor Governor design. : RSV350...1200MW1A316 Del.quantity cm3/: 6.0...6.2 -2 100 s: (5.8...6.4) Governer no. : 0 420 085 076 cm3 : 0.3 Customer-spec. information Spread Customer 100 s: (0.6) Engine : 0M366A 2nd speed rpm : 350.0 Rack travel in mm : 6.30...6.90 1st version kW : 115.0 Del.quantity cm3/: 0.9...1.1 : 2400 Rated speed 100 s: (0.6...1.4) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 Speed rpm : 800 Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 Governor spring pre-tension Test nozzle holder Click setting x : 15.0 : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 1200 Speed : 60.0...62.0 Del.quantity 1000 : (58.0...64.0) Test lines : 1 680 750 015 : 3.50 Spread cm3 1000 : (6.00) Outside diameter x Wall thickness : 6.00x1.50x600 RATED SPEED x Length mm (A) Injection pump setting values 1st version Insp. values in parentheses

Control lever

position degrees: 58...66

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.60

F04

Set equal delivery quant.

per values

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

BEGINNING OF DELIVERY

rpm : 1240...1245 Speed 2nd rack travel in: 4.00 Speed rpm : 1263...1276 3rd rack travel in: 4.00 Speed rpm : 1290...1320 4th rack travel in: 1450 Speed rpm : 0.30...1.70 5th rack travel in: 1240...1255 Speed rpm : 8.60 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.6 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 6.30...6.90 Rack travel in mm : 2.00 Speed rpm : 415...475 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.60...9.70 2nd speed rpm : 800 Rack travel in m: 10.50...10.60 3rd speed rpm : 950 Rack travel in m: 9.90...10.10 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 59.0...61.0 1000 s: (57.0...63.0) cm3 : 5.00 1000 s: (7.0) Spread BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.60 rpm : 1240...1245 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

F05

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 9,6 U Phasing Edition : 06.04.88 Replaces : ISO-4113 Test oil Combination no. : 0 403 476 061 1st spæed Injection pump Pump designation : PES6MW100/720RS1168 EP type number : 0 413 406 154 Governor Governor design. : RSV300...750MW7A328 Governer no. : 0 420 085 086 Spread Customer-spec. information Customer : TAM/YU : BF6L413 Engine 1st version kW : 134.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Speed Inlet press., bar: 1.50 Spread Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 740 014 Testing: Outside diameter : Wall thickness : 6.00x2.00x600 x Length mm Speed (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY LOW IDLE 1 Test pressure, bar: 30...32 Prestroke mm : 2.95...3.05

: (2.90...3.10)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm : 700 Rack travel in mm : 14.50...14.60 Del.quantity cm3/: 16.2...16.4 100 s: (16.0...16.6) cm3 : 0.3 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 2.6...3.0 100 s: (2.4...3.2) cm3 : 0.3100 s: (0.5) FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Del.quantity : 162.0...164.0 1000 : (160.0...166.0) cm3 : 3.501000 : (6.00) RATED SPEED 1st version Control lever position degrees: 38...46 1st rack travel in: 13.5 rpm : 745...750 Speed 2nd rack travel in: 4.00 rpm : 771...784 3rd rack travel in: 4.00 Speed rpm: 805...835 4th rack travel in: 930 Speed rpm : 0.00...1.00 Control lever position degrees: 14...22 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.0

F06

Testing: Speed Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 320...350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 155.0...175.0 1000 s: (152.0...178.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: KHD 9.7 A : 25.03.88 Test sheet Edition

Replaces

Test oil : ISO-4113

: 0 403 546 003 Combination no.

Injection pump

Pump designation : PE6MW100/720LS1117

: 0 413 506 105 EP type number

Governor

Governor design. : RQ350/1250MW26 Governer no. : 0 420 082 007

Customer-spec. information : KHD Customer

Engine : F6L413FX

: 150.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 740 014 Test lines

Outside diameter :: Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25)

Rack travel in mm : 9.00...12.00

F08

: 1- 6- 5- 4- 3- 2 Firing order

Phasing : 0-75-120-195-240-315

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 8.2...8.4 Del.quantity cm3/: 1.2...1.6

100 s: (1.0...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 9.10...9.50 travel mm

rpm : 1300 2nd speed

travel mm : 6.60...6.80

rpm : 550 3rd speed

: 5.70...6.30 travel mm

rpm : 350 4th speed

travel mm : 2.80...3.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 111.0...113.0 Del.quantity 1000 : (109.0...115.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 29...37 Setting point: Speed rpm : 600 Rack travel in mm; 20.0 Testing: 1st rack travel in: 11.00 rpm : 1295...1310 Speed 2nd rack travel in: 4.00 Speed rpm : 1345...1375 4th rack travel in: 1450 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 350' Rack travel in mm: 8.3 Testing: Speed rpm : 100 Minimum rack trave: 9.90 rpm : 350 Speed Rack travel in mm : 8.20...8.40 Rack travel in mm : 2.00 Speed rpm : 380...440 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 700 Rack travel in m: 12.70...12.80 2nd speed rpm : 850 Rack travel in m: 12.40...12.50 3rd speed rpm : 1100 Rack travel in m: 11.90...12.00 START CUT-OUT 1/min : 270 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 700 Speed Del.quantity cm3/: 109.5...113.5 1000 s: (107.5...115.5) cm3 : 5.00Spread 1000 s: (7.0)

rpm : 1295...1310 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 126.5...136.5 1000 s: (123.5...139.5) LOW IDLE Speed rpm : 350 Rack travel in mm : 8.20...8.40 Del.quantity cm3/: 12.5...16.5 1000 s: (10.0...19.0) Spread cm3 : 3.501000 s: (5.50) Remarks:

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

F09

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks : STE 6,5 L 4 : 0-60-120-180-240-300 Test sheet Phasing : 25.03.88 Edition Tolerance + - 0 : 0.50 (0.75) Replaces : ISO-4113 Test oil BASIC SETTING Combination no. : 0 403 546 010 rpm: 1200 1st speed Injection pump Pump designation : PE6MW100/720RS1157 Rack travel in mm : 11.80...11.90 EP type number : 0 413 506 103 Del.quantity cm3/: 10.4...10.6 Governor Governor design. : RQV250...1200MW93 100 s: (10.2...10.8) : 0 420 083 136 Governer no. Spread cm3 : 0.3Customer-spec. information : STEYR Customer 100 s: (0.6) Engine : WD 612.63 rpm : 250.0 2nd speed : 130.0 Rack travel in mm: 5.9...6.0 1st version kW Del.quantity cm3/: 1.1...1.5 Rated speed : 2400 100 s: (0.9...1.7) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 457 413 010 GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 travel mm : 10.00...10.40 Inlet press., bar: 1.50 2nd speed rpm : 1230 Test nozzle holder travel mm : 8.30...8.50 : 0 681 343 009 assembly 3rd speed rpm: 700 : 4.00...4.60 travel mm 4th speed rpm : 250 Opening : 0.80...1.20 pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1230 Outside diameter Speed :: Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Speed rpm : 1200 Aneroid pressure h: 700 Set equal delivery quant. per values Del.quantity : 104.0...106.0 1000 : (102.0...108.0) Spread cm3 : 3.50 1000 : (6.00) BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.00...3.10 Prestroke mm

RATED SPEED

F10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.80

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

Speed rpm : 1305...1335 4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 5.9

Testing:

rpm : 100 Speed Minimum rack trave: 8.00 rpm : 250

Rack travel in mm : 5.90...6.00

CONSTANT REGULATION

rpm : 495...565 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Pressure hPa : -

Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500 2nd pressure hPa : 450

Rack travel in m: 11.40...11.50
3rd pressure hPa : 700
Rack travel in m: 11.80...11.90

START CUT-OUT

1/min : 190 (210) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 700 Del.quantity cm3/ : 99.0...103.0

1000 s: (97.0...105.0)

cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 78.0...80.0

1000 s: (76.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

rpm : 1240...1250 Speed

STARTING F'EL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...140.0

1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.00 Del.quantity cm3/: 11.0...15.0

1000 s: (9.0...17.0) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Spread

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks : 0-60-120-180-240-300 Test sheet : STE 6,5 L 1 Phasing : 25.03.88 Edition Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 546 011 rpm: 1200 1st speed Injection pump Pump designation : PE6MW100/720RS1157 Rack travel in mm : 13.20...13.30 EP type number : 0 413 506 103 Del.quantity cm3/: 12.4...12.6 Governor Governor design. : RQV250...1200MW93-1 : 0 420 083 137 100 s: (12.2...12.8) Governer no. Customer-spec. information cm3 : 0.3Spread : STEYR Customer 100 s: (0.6) : WD 612.65 Engine rpm : 250.0 2nd speed : 154.0 Rack travel in mm: 6.0...6.2 1st version kW : 2400 Del.quantity cm3/: 1.1...1.5 Rated speed 100 s: (0.9...1.7) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 457 413 010 GUIDE SLEEVE TRAVEL rpm : 1340 1st speed : 10.00...10.40 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1230 Test nozzle holder : 8.30...8.50 travel mm assembly : 0 681 343 009 3rd speed rpm : 700 travel mm : 4.00...4.60 4th speed rpm : 250 Opening : 0.80...1.20 pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1230 Outside diameter Speed :: Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00X2.00X600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Speed rpm : 1200 Aneroid pressure h: 700 Set equal delivery quant. per values ____ : 124.5...126.5 Del.quantity 1000 : (122.5...128.5) BEGINNING OF DELIVERY : 3,50 cm3 Test pressure, bar: 30...32 Spread 1000 : (6.00) : 3.00...3.10 Prestroke mm

RATED SPEED

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 12.20

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1305...1335 4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm: 6.1

Testing:

rpm : 100 Speed Minimum rack trave: 7.90 Speed rpm : 250

Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

rpm : 260...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 330 Speed Pressure

Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.30...11.40

2nd pressure hPa : 490

Rack travel in m: 12.70...13.00 3rd pressure hPa : 700

Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

1000 s: (120.5...128.5)

Spread cm3 : 5.001000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 80.0...82.0

1000 s: (78.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 11.0...15.0

1000 s: (9.0...17.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

F13

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : STE 6.5 L : 25.03.88 Test sheet Edition Replaces : 11.02.87 Test oil : ISO-4113 Combination no. : 0 403 546 012 Injection pump Pump designation : PE6MW100/720RS1157 EP type number : 0 413 506 103 Governor Governor design. : RQV250...1200MW93-2 : 0 420 083 138 Governer no. Customer-spec. information Customer : STEYR : WD 612.93 Engine 1st version kW : 165.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter : Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1200 Rack travel in mm : 13.50...13.60 Del.quantity cm3/: 13.1...13.3 100 s: (12.9...13.5) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm: 5.9...6.0 Del.quantity cm3/: 1.2...1.6 100 s: (1.0...1.8) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 10.00...10.40 travel mm rpm : 1230 2nd speed travel mm : 8.30...8.50 3rd speed rpm: 700 : 4.00...4.60 travel mm 4th speed rpm : 250 : 0.80...1.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1230 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 900 : 131.0...133.0 Del.quantity

1000 : (129.0...135.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

F14

1st version Control lever position degrees: 41...49 Testing: 1st rack travel in: 12.50 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1310...1340 4th rack travel in: 1400 Speed rpm : 0.00...1.00 LOW IDLE 1

Control lever position degrees: 9...17 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.9

Testing: Speed rpm : 100 Minimum rack trave: 7.80 Speed rpm : 250 Rack travel in mm : 5.90...6.00

CONSTANT REGULATION rpm : 260...460 Speed

Aneroid/Altitude Compensator Test

1st version Setting rpm ; 500 Speed hPa : 430 Pressure

Rack travel mm : 11.80...11.90

Measurement Speed 1/min: 500

1st pressure hPa : -Rack travel in m: 11.20...11.30 2nd pressure hPa : 580 Rack travel in m: 12.80...13.10

3rd pressure hPa : 900

Rack travel in m: 13.50...13.60

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 700 Del.quantity cm3/ : 130.5...134.5

1000 s: (128.5...136.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 79.5...81.5 1000 s: (77.5...83.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.50

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...140.0

1000 s: (127.0...143.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm: 5.90...6.00
Del.quantity cm3/: 12.0...16.0
1000 s: (10.0...18.0)

cm3 : 3.50 Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : STE 6,5 L 2 Test sheet Edition : 25.03.88 Replaces Test oil : ISO-4113 : 0 403 546 013 Combination no. Injection pump Pump designation : PE6MW100/720RS1157 EP type number : 0 413 506 103 Governor Governor design. : RQ250/1200MW94 Governer no. : 0 420 082 027 Customer-spec. information Customer : STEYR Engine : WD 612.63 1st version kW : 130.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter : Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 10.3...10.5 100 s: (10.1...10.7) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm : 6.1...6.2 Del.quantity cm3/ : 1.2...1.6 100 s: (1.0...1.8) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1320 : 8.90...9.30 travel mm rpm : 1250 2nd speed : 6.20...6.40 travel mm rpm : 375 3rd speed travel mm : 4.00...4.60 rpm : 250 4th speed : 1.50...1.90 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm: 700 Rack travel in mm: 15.60...16.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed Aneroid pressure h: 700 Del.quantity : 103.0...105.0 1000 : (101.0...107.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED

: 1-5-3-6-2-4

Firing order

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.00...3.10

: (2.95...3.15)

1st version Control lever

position degrees: 31...39

Setting point:

Speed rpm : 700 Rack travel in mm: 16.0

Testing:

1st rack travel in: 10.90 Speed rpm : 1240...1250

2nd rack travel in: 4.00

rpm : 1295...1325 Speed

4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point W/out bumper spring

rpm : 250 Rack travel in mm: 6.1

Testing:

rpm : 100 Speed Minimum rack trave: 7.90 Speed rpm: 250

Rack travel in mm : 6.10...6.20 Speed rpm : 550

Maximum rack trave: 1.00

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : -Pressure

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed 2nd pressure hPa : 350

Rack travel in m: 11.70...11.80

3rd pressure hPa : 700

Rack travel in m: 11.90...12.00

START CUT-OUT

1/min : 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm: 700

Del.quantity cm3/: 98.0...102.0

1000 s: (96.0...104.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 78.5...80.5

1000 s: (76.5...82.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 12.0...16.0 1000 s: (10.0...18.0) Spread cm3 : 3.50 1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : STE 6,5 L 3 : 25.03.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 546 014 Injection pump Pump designation : PE6MW100/720RS1157 EP type number : 0 413 506 103 Governor Governor design. : RQ250/1200MW94-1 Governer no. : 0 420 082 028 Customer-spec. information Customer : STEYR : WD 612.65 Engine 1st version kW : 154.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 : 1 680 750 014 Test lines Outside diameter :: Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1200 Rack travel in mm : 13.10...13.20 Del.quantity cm3/: 12.6...12.8 100 s: (12.4...13.0) cm3 : 0.3 Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm : 5.8...5.9 Del.quantity cm3/: 1.2...1.6 100 s: (1.0...1.8) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1320 : 8.90...9.30 travei mm 2nd speed rpm : 1250 : 6.20...6.40 travel mm 3rd speed rpm : 375 travel mm : 4.00...4.60 4th speed rpm : 250 travel mm : 1.50...1.90 GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm : 700 Rack travel in mm : 15.60...16.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed Aneroid pressure h: 700 Del.quantity : 126.0...128.0 1000 : (124.0...130.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED

Firing order

: 1-5- 3- 6- 2- 4

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.00...3.10

: (2.95...3.15)

1st version Control lever

position degrees: 34...42

Setting point:

rpm Rack travel in mm: 16.0

Testing:

1st rack travel in: 12.10

rpm : 1240...1250 Speed

2nd rack travel in: 4.00 Speed rpm: 1310...1340 4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 250° Rack travel in mm: 5.8

Testing:

Speed rpm : 100

Minimum rack trave: 7.50 rpm : 250

Rack travel in mm : 5.80...5.90

CONSTANT REGULATION

rpm : 260...400 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm Pressure hPa : 300

Rack travel mm : 11.50...11.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.70...10.80

2nd pressure hPa : 440

Rack travel in m: 12.40...12.70

3rd pressure hPa : 700

Rack travel in m: 13.10...13.20

START CUT-OUT

1/min : 190 (210) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

F19

Aneroid pressure h: 700

Speed rpm : 700 Del.quantity cm3/ : 123.0...127.0

1000 s: (121.0...129.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 72.0...74.0 1000 s: (70.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 5.80...5.90 Del.quantity cm3/: 12.0...16.0 1000 s: (10.0...18.0)

cm3 : 3.50 Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : LEY 6,7 B Phasing : 0-60-120-180-240-300 Edition : 25.03.88 Tolerance + - 0 Replaces : 0.50 (0.75) : ISO-4113 Test oil BASIC SETTING Combination no. : 0 403 546 015 rpm: 1300 1st speed Injection pump Rack travel in mm : 10.30...10.40 Pump designation : PE6MW90/320RS1158 : 0 413 596 102 EP type number Del.quantity cm3/: 8.4...8.6 Governor Governor design. : RQV200...1300MW95 Governor no. : 0 420 083 150 100 s: (8.2...8.8) Customer-spec. information Spread cm3 : 0.3Customer : BRITISH-LEYLAND 100 s: (0.6) Engine : 402 rpm : 200.0 2nd speed Rack travel in mm: 8.0...8.1 1st version kW : 103.0 Del.quantity cm3/: 1.8...2.2 Rated speed : 2600 100 s: (1.5...2.4) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL rpm : 1340 1st speed : 10.20...10.40 Inlet press., bar: 1.50 travel mm rpm : 1430 2nd speed Test nozzle holder : 11.30...11.70 travel mm assembly : 0 681 343 009 3rd speed rpm : 200 : 0.80...1.20 travel mm rom : 500 Opening 4th speed : 3.40...4.00 pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1350 Outside diameter Speed Wall thickness Rack travel in mm : 15.20...17.80 : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed : 84.0...86.0 1000 : (82.0...88.0) Del.quantity per values

cm3 : 3.50 1000 : (6.00)

Spread

RATED SPEED

1st version

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.30...3.40 Prestroke mm : (3.25...3.45) Rack travel in mm : 9.00...12.00

F20

Control lever position degrees: 45...53 Testing:

1st rack travel in: 9.30 rpm : 1340...1350 Speed 2nd rack travel in: 4.00

Speed rpm : 1400...1430 4th rack travel in: 1490 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 200' Rack travel in mm: 8.0

Testing:

rpm : 100 Speed Minimum rack trave: 9.50 Speed rpm : 200

Rack travel in mm: 8.00...8.10

CONSTANT REGULATION

rpm : 290...360 Speed

START CUT-OUT

1/min : 150 (170) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm_ : 500 Speed

Del.quantity cm3/: 59.0...63.0 1000 s: (57.0...65.0)

cm3 : 5.00Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.30

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 95.0...105.0 1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 200

F21

Rack travel in mm : 8.00...8.10 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) Spread cm3 : 3.50 1000 s: (5.50)

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : KHD 13,4 D2 Test sheet : 25.03.88 Edition : 11.85 Replaces Test oil : ISO-4113 Combination no. : 0 403 548 012 Injection pump Pump designation : PE8MW100/720LS1118 EP type number : 0 413 508 102 Governor Governor design. : RQ300...1150MW63-1 : 0 420 082 017 Governer no. Customer-spec. information Customer : BF8L513 Engine 1st version kW : 225.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 Test lines : 1 680 740 014 Outside diameter : Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25) Rack travel in mm : 9.00...12.00 F22

: 1- 8- 7- 2- 6- 5-Firing order 4- 3 : 0-45-90-135-180-225-Phasing 270-315 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1150 Rack trave! in mm : 12.50...12.60 Del.quantity cm3/: 13.6...13.8 100 s: (13.4...14.0) cm3 : 0.3 Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 7.1...7.2 Del.quantity cm3/: 1.8...2.2 100 s: (1.6...2.4) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1275 travel mm : 9.10...9.50 2nd speed rpm : 1200 travel mm : 6.70...6.90 3rd speed rpm : 390 : 4.10...4.70 travel mm 4th speed rpm : 300 : 1.30...1.70 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm : 650 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed Aneroid pressure h: 900 Del.quantity : 136.0...138.0 1000 : (134.0...140.0) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 30...38

Setting point:

Speed rpm : 650 Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.50 Speed rpm : 1190...1200 2nd rack travel in: 4.00

Speed

rpm : 1255...1285

4th rack travel in: 1340

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300' Speed Rack travel in mm: 7.1

Testing:

rpm : 100 Speed Minimum rack trave: 8.50

Speed rpm: 300 Rack travel in mm: 7.10...7.20

CONSTANT REGULATION

Speed rpm : 330...400

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.50...12.60

2nd speed rpm : 650

Rack travel in m: 13.30...13.40

3rd speed rpm : 800

Rack travel in m: 12.90...13.10

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 380 Pressure

Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.80...11.90

2nd pressure hPa : 480

Rack travel in m: 12.80...13.10

3rd pressure hPa : 900

Rack travel in m: 13.30...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 650 Speed

Del.quantity cm3/: 144.0...146.0 1000 s: (142.0...148.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm_ : 450 Speed

Del.quantity cm3/: 107.0...109.0

1000 s: (105.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.10...7.20

Del.quantity cm3/: 18.0...22.0

1000 s: (16.0...24.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 8- 7- 2- 6- 5-4-3 Note remarks Test sheet : KHD 13,4 D1 : 25.03.88 : 0-45-90-135-180-225-Edition Phasing : 12.09.86 Replaces 270-315 Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 403 548 013 BASIC SETTING Injection pump rpm: 900 1st speed Pump designation : PE8MW100/720LS1117 EP type number : 0 413 508 101 Rack trave! in mm : 12.50...12.60 Governor Governor design. : RQV425...900MW66 Del.quantity cm3/: 10.7...10.9 Governer no. : 0 420 083 097 100 s: (10.5...11.1) Customer-spec. information : KHD cm3 : 0.3Customer Spread : F 8L 513 OPT. 100 s: (0.6) Engine 1st version kW : 153.0 rpm : 425.0 2nd speed Rack travel in mm : 7.4...7.5 Del.quantity cm3/ : 1.3...1.7 : 1800 Rated speed TEST BENCH REQUIREMENTS 100 s: (1.1...2.0) cm3 : 0.3Spread Test oil 100 s: (0.5) inlet temp. OC : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 417 413 000 GUIDE SLEEVE TRAVEL rpm : 940 Inlet press., bar: 1.50 1st speed : 8.70...8.90 travel mm Test nozzle holder 2nd speed rpm : 990 assembly : 0 681 343 009 travel mm : 9.40...10.00 rpm : 550 3rd speed : 3.20...4.00 Opening travel mm rpm : 425 pressure, bar : 172...175 4th speed travel mm : 1.40...2.20

: 1 680 740 014 Test lines

Outside diameter :: Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20 : (3.05...3.25) Rack travel in mm : 9.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed : 107.0...109.0 Del.quantity 1000 : (105.0...111.0) : 3.50 Spread cm3 1000 : (6.00)

Degree: -1 rpm : 900

Rack travel in mm : 15.20...17.80

RATED SPEED

Speed

GUIDE SLEEVE POSITION

Control-lever position

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 11.50 rpm : 940...950 Speed 2nd rack travel in: 4.50

Speed rpm : 1000...1030

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 20...28 Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 7.4

Testing:

rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm: 425

Rack travel in mm: 7.40...7.50

CONSTANT REGULATION

rpm : 450...750 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 12.50...12.60

2nd speed rpm : 675

Rack travel in m: 13.00...13.10

3rd speed rpm : 775

Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 675

Del.quantity cm3/: 111.5...113.5 1000 s: (109.5...115.5)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 940...950 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

F25

Del.quantity cm3/: 130.0...140.0

1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 7.40...7.50 Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...20.0) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : KHD 13,4 D8 Test sheet : 25.03.88 Edition Replaces : 13.05.87 Test oil : ISO-4113 Combination no. : 0 403 548 021 Injection pump Pump designation : PE8MW100/720LS1118 EP type number : 0 413 508 102 Governor Governor design. : RQV300...1150MW56-2 : 0 420 083 127 Governer no. Customer-spec. information Customer : KHD : BF 8L 513 Engine : 235.0 1st version kW : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 740 014 Outside diameter :: Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25) Rack travel in mm : 9.00...12.00

: 1- 8- 7- 2- 6- 5-Firing order

: 0-45-90-135-180-225-Phasing 270-315

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1150 1st speed

Rack trave! in mm : 12.50...12.60

Del.quantity cm3/: 13.6...13.8

100 s: (13.4...14.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 6.8...6.9 Del.quantity cm3/ : 1.3...1.7 100 s: (1.1...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

: 9.80...10.20 travel mm

2nd speed rpm : 1200

travel mm : 8.70...8.90

3rd speed rpm : 600

: 3.90...4.50 travel mm

4th speed rpm: 300

travel mm : 1.10...1.50

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1200 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 900

Del.quantity : 136.0...138.0 1000 : (134.0...140.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.50

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1295...1325 Speed

4th rack travel in: 1370

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.8

Testing:

Speed rpm : 100 Minimum rack trave: 8.50 rpm : 300 Speed

Rack travel in mm : 6.80...6.90

CONSTANT REGULATION

rpm : 330...400 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.50...12.60

2nd speed rpm : 650
Rack travel in m: 13.30...13.40
3rd speed rpm : 900
Rack travel in m: 12.90...13.10

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 hPa : 300 Speed rom Pressure

Mack travel mm : 12.30...12.40

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 11.80...11.90

2nd pressure hPa : 400

Rack travel in m: 13.00...13.30
3rd pressure hPa : 900
Rack travel in m: 13.30...13.40

START CUT-OUT

Speed

1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 650 Speed rpm

Del.quantity cm3/: 144.0...146.0 1000 s: (142.0...148.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: rpm : 450 Speed

Del.quantity cm3/: 107.0...109.0

1000 s: (105.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...150.0

1000 s: (137.0...153.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.80...6.90 Del.quantity cm3/: 13.0...17.0

1000 s: (11.0...19.0)

cm3 : 3.50Spread

1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS 1st speed rpm : 1000 Rack travel in mm : 9,00...9,10 Note remarks : MB 5,7 N 16 Del.quantity cm3/: 4,50...5,00 Test sheet : 03.03.88 Edition Replaces 100 s: (4,25...5,25) Test oil : ISO 4113 Spread cm3 : 0.40Combination no. : 9 400 084 240 100 s: (-) Injection pump Pump designation : PES6A800410RS2293 rpm : 1000 2nd speed Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 7,3...8,2 Governor Governor design. : RQV300...1425AB842L 100 s: (6,95...8.55) cm3 : 0,40 100 s: (0,55) Customer-spec. information Spread : DAIMLER-BENZ-BRAS. Customer rpm : 200 3rd speed Rack travel in mm : 8,90...9,10
Del.quantity cm3/: 2,05...2,85
100 s: (1,7...3,2)
Spread cm3 : 0,25 : OM 352 A Engine TEST BENCH REQUIREMENTS Overflow valve 100 s: (0,45) : 1 417 413 000 FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar : 1.0 1st version rpm : 1400 Test nozzle holder Speed Del.quantity : 67.0...69.0 1000 : (65.5...70.5) Spread cm3 : 3.0 : 0 681 343 009 assembly Opening : 172...175 1000 : (5,0) pressure, bar RATED SPEED Test lines : 1 680 750 014 1st version Outside diameter Control lever x Wall thickness position degrees: 62...70 : 6,00X2,00X600 x Length mm Testing: 1st rack travel in: 17,70 (A) Injection pump setting values rpm : 1425 Insp. values in parentheses Speed 2nd rack travel in: 16,70 Set equal delivery quant. Speed rpm : 1465...1475 per values ____ 3rd rack travel in: 1,50...8,00 Speed rpm : 1650 DEGINNING OF DELIVERY 4th rack travel in: 1780 : 2,15...2,25 : (2,10...2,30) rpm : 0,00...1,00 Prestroke mm Rack travel in mm : 9,00 LOW IDLE 1 : 1-5-3-6-2-4 Control lever Firing order position degrees: 6...14 Testing: Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75) rpm : 100 Speed Minimum rack trave: 6,60 Speed rpm: 250 Rack travel in mm: 5,50...7,00 Rack travel in mm: 5,00

BASIC SETTING

Speed rpm : 350 Speed rpm : 770 Maximum rack trave: 1,00

START CUT-OUT

Speed 1/min: 400

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1400
Del.quantity cm3/: 53,5...56,5
1000 s: (51,0...59,0)
Spread cm3 : 3,0
1000 s: (5,0)

BREAKAWAY

1st version

Speed rpm : 1425...1450

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 13,70...14,30

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 i 9 : 01.03.88 Edition

Replaces : ISO 4113 Test oil

: 9 400 084 241 Combination no.

Injection pump

Pump designation : PES6A80D41ORS2085Y

Governor

Governor design. : RSV575...1100A1B629D

Customer-spec. information

: DAJMLER-BENZ-BRAS. Customer

: OM 352 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)

Rack travel in mm : 9,00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,85

100 s: (4,15...5)

Spread cm3 : 0.40

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10
Del.quantity cm3/ : 10,25...11,65
100 s: (9,95...11,95)
Spread cm3 : 0,35

100 s: (0,45)

rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10

Del.quantity cm3/: 2,45...3,45

100 s: (2,2...3,7) cm3 : 0,20 Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

Del.quantity

53,5...54,5 1000 : (52,0...56,0) cm3 : 2,5

Spread

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 16,00

rpm : 1140...1150 Speed 3rd rack travel in: 4,20...7,40

Speed rpm : 1190 4th rack travel in: 1340

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

G02

position degrees: 28...36 Setting point w/out bumper spring rpm : 575 Speed Rack travel in mm: 7,00 Testing: rpm : 100 Speed Minimum rack trave: 19,00 rpm : 575 Speed Rack travel in mm : 6,70...7,30 Rack travel in mm: 4.00 Speed rpm: 650 rpm : 800 Speed Maximum rack trave: 1,0 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1080 Rack travel in m: -2nd speed rpm : 900 Rack travel in m: +(0...0,30)3rd speed rpm : 650 Rack travel in m: +(0,30...0,50) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/ : 53,0...55,0 1000 s: (51,0...57,0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 48,5...50,5 1000 s: (46,5...52,5) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version rpm : 1110...1130 Speed STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 14,20...14,80

LOW IDLE

Speed rpm: 575

Rack travel in mm: 6,90...7,10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 P : 07.03.88 Edition

Replaces Test oil

: ISO 4113

Combination no. : 9 400 087 230

Injection pump

Pump designation : PE6P100A720RS15

Governor

Governor design.: RSV350...1000P1/400R

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

: 0M 355 Engine

: 161.9 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,80...2,90

: (2,75...2,95)

Rack travel in mm: 9,00

Firing order : 1-5-3-6-2-4

Phasing : 1-60-120-180-240-300 Tolerance + - 0 : 0,50(0,75)

604

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 5,9...6,7

100 s: (5,6...7,0

cm3 : 0.5Spread

100 s: (-)

rpm : 1000 2nd speed

Rack travel in mm : 11.90...12.10 Del.quantity cm3/ : 9.3...10.3 100 s: (8.9...10.7)

cm3 : 0,5

Spread 100 s: (0,7)

rpm : 200 3rd speed

Rack travel in mm: 8,90...9.10
Del.quantity cm3/: 2,5...3,3
100 s: (2,2...3,7)
Spread cm3: 0,35

100 s: (0,55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

: 101,0...103,0 1000 : (97,0...107,0) Del quantity

: 5,0 cm3 Spread

1000 : (7.0)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 16,00

rpm : 1040...1050 Speed

3rd rack travel in: 3,60...4,00

rpm : 1090 Speed 4th rack travel in: 1200

rpm : 0,00...1,50 Speed

LOW IDLE 1 Control lever

position degrees: 16...24
Setting point w/out bumper spring

Speed rpm: 350 Rack travel in mm: 7,50

Testing:

Speed rpm: 100 Minimum rack trave: 19,00 Speed rpm: 350

Speed rpm : 350 Rack travel in mm : 7,30...7,70

Rack travel in mm : 2,40 Speed rpm : 550 Speed rpm : 660 Maximum rack trave: 1,50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 2nd speed rpm : 450
Rack travel in m: 3rd speed rpm : 350

Rack travel in m: +(1,20...1,80)

BREAKAWAY

1st version

Speed rpm : 1010...1030

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 140,0...160,0

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 P1 : 07.03.88 Edition

Replaces Test oil : ISO 4113

Combination no. : 9 400 087 231

Injection pump

Pump designation : PE6P100A720RS15

Governor

Governor design.: RSV350...900P7/402R

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

Engine : OM 355

1st version kW : 136.2 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm 9ر2...8ړ :

: (2,85...2,95)

Rack travel in mm : 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

G06

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 6,0...6,8

100 s: (5,7...7₁)

cm3 : 0.5Spread

100 s: (-)

rpm : 1000 2nd speed

rpm : 200

3rd speed

Rack travel in mm : 8,90...9,10
Del.quantity cm3/ : 2,7...3,3
100 s: (2,3...3,7)
Spread cm3 : 0,35

100 s: (0.55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 880 Speed

Del.quantity

1000 : (95,0...103,0)

: 3,5 cm3 Spread

1000 : (6,0)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 16,00

Speed rpm : 940...950 3rd rack travel in: 6,20...7,80 Speed rpm : 950

4th rack travel in: 1030

rpm : 0,00...1,00 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 7,50

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 350 Rack travel in mm: 7,20...7,80

Rack travel in mm: 400 rpm : 2.8...4,8 rpm : 480 Speed Speed

Maximum rack trave: 1,50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 880 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -

3rd speed rpm : 380

Rack travel in m: +(1,20...1,80)

BREAKAWAY

1st version

rpm : 910...930 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140,0...160,0

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7,40...7,60

Remarks:

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 H1 : 07.03.88 Edition

Replaces

: ISO 4113 Test oil

: 9 400 087 239 Combination no.

Injection pump

Pump designation : PESP100A720RS265

Governor

Governor design. : RSV300...1100PA281R

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

Engine : 0M 355/5

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar : 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

SEGINNING OF DELIVERY

Prestroke mm : 2,8...2,9

: (2,75...2,95)

Rack travel in mm: 9,00

: 1-2-4-5-3 firing order

: 0-72-144-216-288 Phasing

Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 6,0...6,8

100 s: (5,7...7₁)

cm3 : 0.35Spread

100 s: (0,6)

2nd speed rpm : 1000

Rack trave! in mm : 11,90...12,10 Del.quantity cm3/: 9,4...10,4

100 s: (9.0...10,8) cm3 : 0,5_

Spread

100 s: (0,7)

rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10 Del.quantity cm3/ : 2,7...3,3

100 s: (2,3...3,7) cm3 : 0,35

Spread 100 s: (0,55)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1070 Speed

: 118,5...120,5 Del.quantity 1000 : (116,5...122,5)

: 3,5 : (6,0) cm3 Spread

1000

RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 16,00

rpm : 1140...1150 Speed

2nd rack travel in: 3,40 Speed rpm : 1215...1245

4th rack travel in: 1300

Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

rpm : 150 Speed Minimum rack trave: 8,60

Speed rpm: 300

Rack travel in mm : 4,60...7,00
Rack travel in mm : 1,70
Speed rpm : 530...570

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 8,20...8,60

START CUT-OUT

Speed 1/min: 180(250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 450

Del.quantity cm3/: 101.0...105.0 1000 s: (99.0...107.0) Spread cm3 : 5.0 1000 s: (7.0)

BREAKAWAY

1st version

rpm : 1125...1145 Speed

STARTING FUEL DELIVERY

rpm_ : 100 Speed

Del.quantity cm3/: 140,0...160,0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 Q : 08.03.88 Edition

Replaces

: ISO-4113 Test oil

: 9 400 087 241 Combination no.

Injection pump

Pump designation : PE6P100A720RS15V

Governor

Governor design. : RQ250/1100PA269R

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: 0M 355 Engine

: 147.2 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172**...**175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm 9ر2...8ر2 :

: (2,75...2,95)

Rack travel in mm : 9,00

: 1-5-3-6-2-4 Firing order

; 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50(0.75)$

G10

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 6,0...6,8

100 s: (5,7...7.1)

cm3 : 0.5Spread

100 s: (-)

rpm : 1000 2nd speed

Rack travel in mm: 11,90...12,10

Del.quantity cm3/: 9,4...10,4

100 s: (9,0...10,8)

Spread cm3: 0,5

100 s: (0,7)

rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10

Del.quantity cm3/: 2.7...3.3 100 s: (2.3...3.7) Spread cm3: 0.35

100 s: (0,55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15,70...16,30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1070 Speed

: 99,0...101,0 Del.quantity

1000 : (96,0...104,0)

: 3,5 Spread cm3

1000 : (6,0)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm: 16,0

Testing:

1st rack travel in: 15,0

rpm : 1145...1160 Speed

2nd rack travel in: 3,50

rpm : 1185...1215 Speed

4th rack travel in: 1250

Speed rpm : 0,00...1,00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6,40

Testing:

Speed rpm : 200 Minimum rack trave: 6,70

Speed rpm: 300
Rack travel in mm: 4,80...6,70
Rack travel in mm: 3,10
Speed rpm: 380...420

rpm : 500 Speed Maximum rack trave: 1,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 450
Del.quantity cm3/ : 78,0...82,0
1000 s: (76,0...84,0)
Spread cm3 : 5,0
1000 s: (7,0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 15,00

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140,0...160,0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 A 1 Edition : 08.03.88

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 243

Injection pump

Pump designation : PE5P100A720RS265Y

Governor

Governor design. : RQ250/1100PA269R

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: OM 355-5 Engine

: 125.1 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,8...2,9 : (2,75...2,95)

Rack travel in mm : 9,00

: 1-2-4-5-3 Firing order

: 0-72-144-216-288 Phasing

Tolerance + - 0 : 0,50(0,75)

G12

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 6,1...6,7

100 s: (5,8...7.0)

Spread cm3 : 0.5

100 s: (-)

rpm : 1000 2nd speed

Rack travel in mm: 11.90...12.10
Del.quantity cm3/: 9.5...10.3
100 s: (9.1...10.7)
Spread cm3: 0.5
100 s: (0.7)

rpm : 200 3rd speed

Rack travel in mm: 8,90...9.10 Del.quantity cm3/: 2,5...3,3 100 s: (2,1...3,7)

cm3 : 0.35Spread

100 s: (0.55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm: 15,70...16,30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1090 Speed

: 102,0...104,0 Del.quantity

1000 : (99,0...107,0)

cm3 Spread

: 3,5 : (6,0) 1000

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm: 16,0

Testing:

1st rack travel in: 15.00 Speed rpm : 1145...1160 2nd rack travel in: 3.50 Speed rpm : 1185...1215

4th rack travel in: 1250

rpm : 0,00...1,00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 6,40

Testing:

Speed rpm : 200 Minimum rack trave: 6,70 rpm : 300 Speed

Rack travel in mm : 4,80...6,70

Rack travel in mm: 400 rpm : 3,10 rpm : 500 Speed Speed Maximum rack trave: 1,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 450 Del.quantity cm3/: 82_0...86_0 1000 s: (78_0...90_0)

cm3 : 5.0 1000 s: (7.0) Spread

RACK STOP ADJUSTMENT

rpm : 500 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 15,00

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140,0...160,0

Remarks:

Note remarks

Test sheet : MB 10,0 H : 09.03.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 087 260

Injection pump

Pump designation : PESP100A720RS265

Governor

Governor design. : RQV300...1100PA465

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: OM 355-5 Engine

1st version kW : 142 Rated speed : 2200

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm 9ر2...8ر2:

: (2,75...2,95)

Rack travel in mm: 12.8

: 1-2-4-5-3 Firing order

: 0-72-144-216-288 Phasing

Tolerance $+ - \circ : 0.50(0.75)$

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12,80...12,90

Del.quantity cm3/: 11,4...11,6

100 s: (11,1,1,1)

Spread cm3 : 0,35

100 s: (0,6)

rpm : 300 2nd speed

Rack travel in mm: 7,3...7,5 4 ـ 1...9 و Del.quantity cm3/ : 0

100 s: (0,45...1,85) cm3 : 0,35

Spread

100 s: (0,55)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1100 1st speed travel mm : 8,40 rpm : 800 2nd speed

40 م.5 م.500 : travel mm

rpm : 400 3rd speed

: 2,00...2,60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1100

Rack travel in mm: 15,20...17,80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 114,0...116,0 1000 : (112,0...118,0)

: 3,5 Spread cm3

1000 : (6,0)

RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 11,80

Speed rpm : 1440...1450

2nd rack travel in: 4,00

Speed rpm : 1230...1260

4th rack travel in: 1350

Speed rpm : 0,00...1,00

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

Speed rpm: 100 Minimum rack trave: 7,50

Speed rpm : 300
Rack travel in mm : 5,90...6,10
Rack travel in mm : 2,00
Speed rpm : 510...570
Speed rpm : 350

Maximum rack trave: *

START CUT-OUT

Speed 1/min: 180 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 450 Speed

Speed rpm : 450
Del.quantity cm3/: 92,0...96,0
1000 s: (90,0...98,0)
Spread cm3 : 5,0
1000 s: (7,0)

BREAKAWAY

1st version

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140,0...160,0

Remarks:

* = Pull back control level to stop position with pump running. Control-rod travel must then be 0 mm.

Note remarks

: FIA 13,8 A9 Test sheet Edition : 08.03.88

Replaces Test oil : ISO-4113

Combination no. : 9 400 087 262

Injection pump

Pump designation : PE6P12OA72ORS167Z

Governor

Governor design. : RQ225/1000PA118R

Customer-spec. information Customer : FIAT

: 8210 Engine

1st version kW : 169 Rated speed : 2000

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 443 022 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter x Wall thickness

x Length mm : 8,00X2,00X1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,0...2,1 Prestroke mm

: (1,95...2,15)

Rack travel in mm : 10,95

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50(0.75)

G16

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 10,95...10,15

Del.quantity cm3/: 18,1...18,3

100 s: (17,6...18,8)

cm3 : 0.5Spread

100 s: (0,9)

rpm : 225 2nd speed

Rack travel in mm : 6,90...7.10 Del.quantity cm3/: 0,8...1,4

100 s: (0,2...2,0) cm3 : 0,5 Spread

100 s: (0,8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 550

Speed 40...16,40 Rack travel in mm: 15,60...16

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 181,0...183,0 Del.quantity

1000 : (179,0...186,0)

cm3 : 5,0 Spread

1000 : (9,0)

RATED SPEED

1st version

Setting point:

rpm : 550 Speed Rack travel in mm: 16,0

Testing:

1st rack travel in: 10,00

rpm : 1045...1060 Speed

2nd rack travel in: 4,00

rpm : 1090...1120 Speed

4th rack travel in: 1160

rpm : 0,00...1,00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 225 Rack travel in mm: 5,40

Testing:

Speed : 1000 rpm

Minimum rack trave: 6,90

Speed rpm: 225
Rack travel in mm: 5,30...5,50
Rack travel in mm: 2,00
Speed rpm: 310...350
Speed rpm: 380
Maximum rack trave: 1,00

RACK STOP ADJUSTMENT

Speed rpm: 550

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10,00

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 270...290 Rack travel in mm : 16,70...17,10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS 1st speed rpm : 1000 Note remarks Rack travel in mm : 11,25...135 : MB 10,0 I Del.quantity cm3/: 9,25...9,45 Test sheet : 08.03.88 Edition Replaces 100 s: (8,95...9,75) Test oil : ISO-4113 Spread cm3 : 0.3Combination no. : 9 400 0897 268 100 s: (0,6) Injection pump Pump designation : PESP100A720RS265 2nd speed rpm : 350 Rack travel in mm : 7,40...7,60 Governor Governor design.: RSV350...1000P1/400R Del.quantity cm3/: 1,4...1,9 100 s: (0,95...1,35) cm3 : 0,3 Customer-spec. information Spread : DAIMLER-BENZ-BRAS. 100 s: (0,5) Customer : 0M 355-5 GUIDE SLEEVE POSITION Engine Control-lever position TEST BENCH REQUIREMENTS Degree: -3 rpm : 800 Speed Overflow valve Rack travel in mm: 0,3...1,0 : 1 417 413 012 Governor spring pre-tension Click setting x : 3,5 Inlet press., bar : 1.5 Test nozzle holder FULL LOAD DELIV. AT FULL LOAD STOP assembly : 0 681 343 009 1st version rpm : 1000 Opening Speed 92,5...94,5 1000 : (90,5...96,5) pressure, bar : 172...175 Del.quantity cm3 : 3,5 Spread Test lines : 1 680 750 015 1000 : (6.0) Outside diameter RATED SPEED x Wall thickness : 6,00X1,50X600 1st version x Length mm Control lever (A) Injection pump setting values position degrees: 44...52 Insp. values in parentheses Set equal delivery quant. Testing: per values 1st rack travel in: 10,30 rpm : 1040...1050 Speed BEGINNING OF DELIVERY 2nd rack travel in: 4,00 Speed rpm : 1070...1100 Prestroke mm : 2.8...2.9 : (2.75...2.95)
Rack travel in mm : 11.25 4th rack travel in: 1200 rpm : 0,30...1,70 Speed Firing order : 1-2-4-5-3 LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Phasing : 0-72-144-216-288 Tolerance + - 0 : 0,50 (0,75) Speed rpm : 350 Rack travel in mm : 7,00 Speed rpm: 350 Rack travel in mm: 7,40...7,60 BASIC SETTING

Rack travel in mm: 2,00

Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11,25...11,35

2nd speed rpm : 450

Rack travel in m: 11,25...11,35

3rd speed rpm : 350

Rack travel in m: 12,55...13,05

BREAKAWAY

1st version

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 140,0...160,0

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6,90...7,10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS 1st speed rpm: 900 Note remarks Rack travel in mm : 11,80...190 : SCA 11_0 Y3 Del.quantity cm3/: 11,7...11,9 Test sheet : 08.03.88 Edition 100 s: (11,3...12,3) Replaces : ISO 4113 Test oil Spread cm3 : 0.5Combination no. : 9 400 087 296 100 s: (0,8) Injection pump Pump designation : PE6P110A720RS3115 rpm : 350 2nd speed Rack trave! in mm : 4,5...4,7
Del.quantity cm3/ : 2,0...2,4 Governor Governor design.: RSV350...900P7/481 100 s: (1.5...2,9) cm3 : 0,2 Customer-spec. information Spread 100 s: (0,4) Customer : SAAB-SCANIA : DN-11 GUIDE SLEEVE POSITION Engine Control-lever position TEST BENCH REQUIREMENTS Decree: -3 rpm : 800 Speed Overflow valve Rack travel in mm: 0,3...1,0 : 1 417 413 012 Governor spring pre-tension Click setting x : 5,5 Inlet press., bar: 1.5 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 900 Opening Speed . 117,0...119,0 pressure, bar : 172...175 Del.quantity 1000 : (115,0...121) cm3 : 4.5 1000 : (7.5) Spread Test lines : 1 680 750 015 Outside diameter RATED SPEED x Wall thickness x Length mm : 6,00X1,50X600 1st version Control lever (A) Injection pump setting values position degrees: 52...60 Insp. values in parentheses Set equal delivery quant. Testing: per values ____ 1st rack travel in: 10,80 Speed rpm : 940...950 2nd rack travel in: 4.00 Speed rpm: 965...995 BEGINNING OF DELIVERY : 3,3...3,4 : (3,25...3,45) 4th rack travel in: 1100 Prestroke mm rpm : 0,3...1,7 Speed Rack travel in mm : 11,80 Firing order : 1-5-3-6-2-4 LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75) Speed rpm : 350 Rack travel in mm: 4,10 rpm : 350 Speed Rack travel in mm: 4,50...4,70 Rack travel in mm: 2,00 BASIC SETTING

Speed rpm : 430...480

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 600
Del.quantity cm3/: 118,5...121,5
1000 s: (116,0...123,0)
Spread cm3: 6,0
1000 s: (8,5)

BREAKAWAY

1st version

Speed rpm : 940...950

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4,00...4,20

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MB 10,0 F 1

Edition : 08.03.88

Replaces Test oil : ISO-4113

Combination no. : 9 400 087 333

Injection pump

Pump designation : PESP100A720RS491

Governor

Governor design. : RQ300/1100PA269-3

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

: OM 355-5 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 3,5...3,6 : (3,45...3,65) Prestroke mm

Rack travel in mm : 12,50

Firing order : 1-2-4-5-3

: 0-72-144-216-288 Phasing

Tolerance + - 0 : 0,5(0,75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12,50...12,60

Del.quantity cm3/: 11,75...11,95

100 s: (11,45...12,25)

cm3 : 0.35Spread

100 s: (0,6)

rpm : 300 2nd speed

Rack trave! in mm : 7,4...7,6

Del.quantity cm3/: 0,9...1,3

100 s: 0,45...1,75) cm3 : 0.35Spread

100 s: (0,55)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 13,40...13,90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 117,5...119,5 Del.quantity

1000 : (115,5...121)

cm3 : 3,5 Spread 1000 : (6,0)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 13,7

Testing:

1st rack travel in: 11,50 Speed rpm : 1145...1160

2nd rack travel in: 4,00

rpm : 1190...1220 Speed

4th rack travel in: 1300

Speed rpm : 0,00...1,50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed

Rack travel in mm: 7,50

Testing:

: 100 Speed rpm

Minimum rack trave: 9,50

rpm : 300

Rack travel in mm : 7,40...7,60

Rack travel in mm : 2,00 Speed rpm : 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 500
Del.quantity cm3/: 102,5...105,5
1000 s: (100,0...108,0)
Spread cm3: 5,0
1000 s: (7,0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,50 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150,0...170,0
Rack travel in mm : 17,5...18,5

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CAT 7,0 G 1 Edition : 08.03.88 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 341 Injection pump Pump designation : PES4P100A720LS501 Governor Governor design.: RQV350...1000PA798 Customer-spec. information Customer : CATERPILLAR Engine : 3304 DIT TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 012 Inlet press., bar : 1.5 Test nozzle holder assembly : 0 681 343 009 Opening : 172...175 pressure, bar Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6,00X2,00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ SEGINNING OF DELIVERY Prestroke mm : 3,95...4,05 : (3,9...4,1) Rack travel in mm : 8,70

rpm: 1000 1st speed Rack travel in mm : 8,70...8,80 Del.quantity cm3/: 8,8...8,9 100 s: (8,5...9,2) Spread cm3 : 0,35100 s: (0,6) 2nd speed rpm : 350 Rack trave! in mm : 6,20...6,40 Del.quantity cm3/ : 1,3...7 100 s: (0,85...2,15) cm3 : 0,35 Spread 100 s: (0,55) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1150 travel mm : 8,50...8,60 rpm : 900 2nd speed travel mm : 6,00...6,20 rpm : 700 3rd speed u ave : 4,50...4,80
4th speed rpm : 500
trave! --travel mm : 2,90...3,20 5th speed rpm : 350 : 1,30...1,50 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150 Speed Rack travel in mm : 15,20...17,80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed : 88,0...89,0 Del.quantity 1000 : (85,5...91,5) cm3 : 3,5 Spread 1000 : (6,0) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 7,70 rpm : 1030...1040 Speed 2nd rack travel in: 4,00 rom : 1075...1105 Speed

: 0-90-180-270 Phasing Tolerance + - 0 : 0,50(0,75)

: 1-3-4-2

BASIC SETTING

Firing order

4th rack travel in: 1250 Speed rpm : 0,00...1,00

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

Speed rpm : 100 Minimum rack trave: 8,00 Speed rpm : 350

Rack travel in mm : 4,90...5,10

Rack travel in mm: 2,00 rpm : 500...560 Speed rpm : 370 Speed Maximum rack trave: *

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 8,70...8,80 2nd speed rpm : 870

Rack travel in m: 8,80...9,00

3rd speed rpm : 750

Rack travel in m: 8,90...9,10

4th speed rpm : 600

Rack travel in m: 9,00...9,10

START CUT-OUT

1/min : 290(310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 600 Speed rpm

Del.quantity cm3/: 91,0...95,0 1000 s: (89,0...97,0)

Spr ead

cm3 : 5,0 1000 s: (7,0) rpm : 750 Speed rpm

Del.quantity cm3/: 90,5...94,5 1000 s: (88,5...96,5)

cm3 : 5.0 Spread

1000 s: (7,0)

BREAKAWAY

1st version

rpm : 1030...1040 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 157,0...177,0 Rack travel in mm : 19,00...21,00 LOW IDLE

rpm : 350 Speed

Rack travel in mm : 4,90...5,10

Remarks:

* = Pull back control level to stop position with pump running. Control-rod

travel must then be 0 mm.

Note remarks

: CAT 7,0 G Test sheet Edition : 08.03.88

Replaces Test oi!

: ISO-4113

Combination no.

: 9 400 087 347

Injection pump

Pump designation : PES4P100A720LS501

Governor

Governor design. : RQV350...1100PA798-1

Customer-spec. information

Customer : CATERPILLAR

: 3304 DIT Engine

: 88.3 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 012

Inlet press., bar : 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 3,95...4,05

: (3,9...4,1)

Rack travel in mm: 10,40

Firing order : 1-3-4-2

: 0-90-180-270 Phasing Tolerance + - 0 : 0,50(0,75)

G26

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm: 10,40...10,50

Del.quantity cm3/: 12,4...12,5

100 s: (12,1...12,8)

Spread : cm3 : 0.35

100 s: (0,6)

rpm : 350 2nd speed

Rack travel in mm : 6,20...6,40 Del.quantity cm3/: 1,3...1,7 100 s: (0,85...2,15) Spread cm3: 0,35

100 s: (0,55)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1150 1st speed

: 8,50...8,60 rpm : 900 travel mm

2nd speed

: 6,00...6,20 travel mm 3rd speed rpm : 700

travel mm : 4,50...4,80

rpm : 500 4th speed

: 2,90...3,20 : 350 travel mm

5th speed rpm

travel mm : 1,30...1,50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 124,0...125,0 Del.quantity

: 3,5 cm3 Spread

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 63...71

Testing:

1st rack travel in: 9,40

rpm : 1130...1140 Speed

2nd rack travel in: 4,00

rpm : 1185...1215 Speed

4th rack travel in: 1320

Speed

rpm : 0,00...1,00

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

rpm : 100 Speed Minimum rack trave: 8,00 rpm : 350 Speed

Rack travel in mm: 4,90...5,10
Rack travel in mm: 2,00
Speed rpm: 500...560
Speed rpm: 370

Maximum rack trave: *

START CUT-OUT

Speed 1/min: 290(310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 120...124 1000 s: (121_5...127_5)

cm3 : 5.0 Spread 1000 s: (7,0)

BREAKAWAY

1st version

rpm : 1130...1140 Speed

STARTING FUEL DELIVERY

Speed : 100 Lbw

Del.quantity cm3/: 157.0...177.0 Rack travel in mm: 19.0...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 4,90...5,10

emarks:

* = Pull back control level to stop position with pump running. Control-rod travel must then be 0 mm.

Note remarks

: FOR 6,6 e Test sheet Edition : 10.5.88 Replaces : 2.86 Test oil : ISO-4113

Combination no. : 9 400 087 354

Injection pump

Pump designation : PES6P110A720RS3158 EP type number : 9 400 087 049

Governor

Governor design. : RQV350...1300PA787 : 9 420 080 218 Governer no.

Customer-spec. information Customer : FORD (FTO)

: 6,6 L - TC Engine

1st version kW : 129.2 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50,600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.25...4.35 Prestroke mm : (4.20...4.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5(0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference O CS : 3.5...4.5

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.60...1.70

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350
Rack travel in mm : 7.70...7.90
Del.quantity cm3/: 2.0...2.4

100 s: (1.7...2.6)

cm3 : 0.35

Spread 100 s: (0.55)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 0.60...1.30 travel mm

rpm : 500 2nd speed

: 2.30...2.70 travel mm

rpm : 800 3rd speed

: 4.00...4.30 travel mm

rpm : 1000 4th speed

: 5.00...5.30 travel mm

rpm : 1300 5th speed

: 7.20...7.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP 1st version : 1300 Speed rpm : 112.5...114.5 Del.quantity 1000 : (110.5...165.5) : 5.0 Spread cm3 1000 : (9.0) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 10.60 Speed rpm : 1360...1370 2nd rack travel in: 4.00 rpm : 1470...1500 Speed 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Testing: Speed : 100 rpm Minimum rack trave: 9.50 : 350 Speed rpm Rack travel in mm : 7.70...7.90 Rack travel in mm : 2.00 : 690...750 Speed rpm CONSTANT REGULATION rpm : 370...440 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.60...11.70 2nd speed rpm : 800 Rack travel in m: 12.10...12.20 3rd speed rpm : 900 Rack travel in m: 12.00...12.20 4th speed rpm : 1050 Rack travel in m: 11.85...11.90 START CUT-OUT Speed 1/min : 290(310) FUEL DELIVERY CHARACTERISTICS 1st version

: 800

Low

Speed

HO1

Del.quantity cm3/: 95.5...99.5 1000 s: (93.5...101.5) Spread cm3: -1000 s: (-) Speed rpm: 900 Del.quantity cm3/: 101.0...106.0 1000 s: (99.0...108.0) Spread cm3: -1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60 Speed rpm : 1360...1370

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm: 350
Rack travel in mm: 7.70...7.90
Del.quantity cm3/: 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3: 3.5
1000 s: (5.5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 6,6 d Edition : 5.5.88 : 17.8.87 Replaces

Combination no. : 9 400 230 006

Injection pump

Pump designation : PES6A95D410RS2559

Governor

Test oil

Governor design. : RSV400...1200A2B2043

: ISO-4113

Customer-spec. information Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6,35x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 1,85...1,95 Prestroke mm

(1,80...2,00)
Rack travel in mm: 10,50
Firing order: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm: 8,80

Del.quantity cm3/: 8,4...8,6

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

2nd speed rpm : 400 Rack travel in mm : 5,20 Del.quantity cm3/ : 1,1...1,5 100 s: (-)

cm3 : 0,3Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm: 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 84,0...86,0 Del.quantity

1000 : (81,0...89,0)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 7,80

rpm : 1245...1255 Speed

2nd rack travel in: 4,00

rpm : 1290...1320 Speed

4th rack travel in: 1400

rpm : 0,30...1,70 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm: 4,70

Testing:

rpm : 100 Speed Minimum rack trave: 19,00 rpm : 400

Rack travel in mm : 5,10...5,30 Rack travel in mm : 2,00

: 585...645 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 8.80...8.90

2nd speed rpm : 800

Rack travel in m: 9,30...9,50

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 88,0...92,0

1000 s: (86,0...94,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7,80

Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160,0...180,0

1000 s: (-)

Rack travel in mm: 21,00

HIGH IDLE

1st version

rpm : 1295 Speed

Rack travel in mm: 4,50

Del.quantity cm3/: 21.8...31.8 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.20

Del.quantity cm3/: 11,0...15,0

1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Note remarks

: IHC 9₂0 e 3 Test sheet Edition : 5.5.88 Replaces : 11.3.87 Test oil : ISO-4113

: 9 400 230 038 Combination no.

Injection pump

Pump designation : PES8A95D32ORS2624

Governor

Governor design. : RQV325...1400AB1149R

Customer-spec. information Customer : IHC

: D9L Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 019

Inlet press., bar : 2.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.55...2.65 Prestroke mm : (2.50...2.70)

Rack travel in mm : 10.50

Firing order : 1-3-7-3-6-5-4-2

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.5(0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 325
Rack travel in mm : 7.00...7.20
Del.quantity cm3/: 0.9...1.5

100 s: (-)

cm3 : 0.3Spread

100 s: (0.55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1430 Speed Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

Del.quantity : 69.5...71.5 1000 : (67.5...73.5)

: 3.9 cm3

Spread 1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 10.30

rpm : 1440...1450 Speed

2nd rack travel in: 4.00

rpm : 1545...1575 Speed

4th rack travel in: 1620

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Setting point w/out bumper spring

rpm : 325 Speed

H04

Rack travel in mm: 7.10 Testing: rpm : 100 Speed Minimum rack trave: 9.10 Speed rpm : 325
Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.00 Speed rpm : 620...680 START CUT-OUT Speed 1/min: 170...250 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm: 800 Del.quantity cm3/: 59.0 1000 s: (63.0) Spread cm3 : -1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.30 Speed rpm : 1440...1450 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 75.0...99.0 1000 s: (-) Rack travel in mm: 17.20 HIGH IDLE 1st version rpm : 1540 cm3 : 6.0 Speed Spread 1000 s: (-)

LOW IDLE

Speed rpm : 325
Del.quantity cm3/ : 9.0...15.0
 1000 s: (-)

Remarks:

Note remarks

Test sheet : IHC 9.0 e 2

Edition : 5.5.88 Replaces : 7.86 : ISO-4113 Test oil

Combination no. : 9 400 230 039

Injection pump

Pump designation : PES8A95D32ORS2624 EP type number : 9 410 230 016

Governor

Governor design.: RQV325...1400AB1149-

: 9 420 231 007 Governer no.

Customer-spec. information Customer : IHC

: D9L Engine

1st version kW : 136.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 019

Inlet press., bar: 2.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 9 681 271 001

Outside diameter

x Wall thickness

x Length mm : 6.35x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.55...2.65 Prestroke mm : (2.50...2.70)

Rack travel in mm: 17.20

H₀6

Firing order : 1-8-7-3-6-5-4-2

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - 0 : 0.5(0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3 Spread

100 s: (-)

2nd speed rpm : 325 Rack travel in mm : 7.30...7.50 Del.quantity cm3/: 0.9...1.5

100 s: (-)

cm3 : 0.3Spread 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1430

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : <u>1</u>400 Speed

Del.quantity : 77.0...79.0 1000 : (75.0...81.0)

cm3 : 3.0 Spread

1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.30

rpm : 1440...1450 Speed

2nd rack travel in: 4.00

Speed rpm : 1545...1575

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...15

Testing:
Speed rpm : 100
Minimum rack trave: 9.10
Speed rpm : 325
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00

Speed rpm : 630...690

START CUT-OUT

Speed 1/min: 170...250

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 800 Del.quantity cm3/: <69.0 1000 s: (<71.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 76.0...96.0

1000 s: (-)

Rack travel in mm: 17.20

HIGH IDLE

1st version

Speed rpm : 1550 Spread cm3 : 4.0 1000 s: (-)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 9.0...15.0

1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

H07

Note remarks

: DEE 7,6 a 9 Test sheet : 6.5.88 Edition : 5.3.87 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 231 012

Injection pump

Pump designation : PES6P110A720RS361

Governor

Governor design. : RSV400...1100P2/456

Customer-spec. information

: JOHN DDERE Customer

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.75...2.85 Prestroke mm

: (2.70...2.90)

Rack travel in mm : 11.30...11.40

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 15.0...15.2

100 s: (14.7...15.5)

cm3 : 0.4Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 0.8...1.1

100 s: (-)

cm3 : -Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1100

Del.quantity : 150.0...152.0 1000 : (147.0...155.0)

cm3 : 4.0 Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.30

rpm : 1145...1155 Speed

2nd rack travel in: 6.50

Speed rpm : 1195...1205

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring Speed rpm: 400 Rack travel in mm: 5.80 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 400
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 570...630 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.30...11.40 2nd speed rpm : 650 Rack travel in m: 11.60...11.80 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 800 hPa : 550 Pressure Rack travel mm : 11.00...11.10 Measurement Speed 1/min: 800

1st pressure hPa : 330

Rack travel in m: 9.50...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100 rpm : 650 Speed

Del.quantity cm3/: 153.5...156.5 1000 s: (150.5...159.5)

cm3 : -Spread

1000 s: (-) Aneroid pressure h: -

Speed rpm : 550 Del.quantity cm3/ : 90.0...96.0

1000 s: (87.0...99.0)

Spread cm3 : -1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30

rpm : 1145...1155 Speed

H09

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 155.0...175.0 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200 Del.quantity cm3/ : 55.0...65.0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Del.quantity cm3/: 8.5...11.5 1000 s: (-)

Remarks:

: JOHN DEERE NO. AR

: 87785

Start-of-delivery mark = 13.25° after

start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

Note remarks

: DEE 7,6 a10 Test sheet : 6.5.88 : 5.3.87 Edition

Replaces : ISO-4113 Test oil

Combination no. : 9 400 231 066

Injection pump

Pump designation : PES6P110A720RS361 : 0 412 016 050 EP type number

Governor

Governor design: : RSV400...1050P2/477 Governer no: : 9 420 234 046

Customer-spec. information

Customer : JOHN DEERE

: 6466 AR-01 Engine

1st version kW : 167.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 40...45

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

50x600 : x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.75...2.85 Prestroke mm

: (2.70...2.90)

Rack travel in mm: 10.50

H10

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 15.0...15.2

100 s: (-) -----

Spread cm3 : 0.4

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 1.2...1.8

100 s: (-)

cm3 : 0.4 100 s: (-) Spread

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rp̃m : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 700

Del.quantity : 150.0...152.0 1000 : (147.0...155.0)

cm3 : 4.0 1000 : (6.0)

Spread

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.50

Speed rpm : 1105...1115

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1280 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.70 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 400 Speed грm Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 Speed rpm : 570...630 Speed rpm : 800 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 11.45...11.55 2nd speed rpm : 650 Rack travel in m: 12.25...12.35 d speed rpm : 500 3rd speed rpm Rack travel in m: 9.15...9.25 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 533 Pressure Rack travel mm : 11.50...11.60 Measurement Speed 1/min: 500 1st pressure hPa : 266 Rack travel in m: 9.60...10.00 2nd pressure hPa : -Rack travel in m: 9.10...9.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 650 Speed rpm Del.quantity cm3/: 162.0...166.0 1000 s: (159.0...169.0) cm3 : 6.0 Spread 1000 s: (-) Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 89.0...95.0 1000 s: (87.0...97.0) Spread cm3 : 6.01000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50 rpm : 1105...1115 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 155.0...175.0 1000 s: (-)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

rpm : 1150 Speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 47.0...57.0 1000 s: (-)

cm3 : 6.0Spread 1000 s: (-)

LOW IDLE

rpm : 400 Speed Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 12.0...18.0

1000 s: (-) Spread cm3 : 4.01000 s: (-)

Remarks:

: JOHN DEERE NO. AR

: 98259

Start-of-delivery mark = 13.25° after

start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

Note remarks

: DEE 7.6 9 2 : 19.5.88 Test sheet Edition : 7.86 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 231 084

Injection pump

Pump designation : PES6P110A720RS3083-1

Governor

Governor design. : RSV425...1100P2/489

Customer-spec. information Customer : JOHN DEERE

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

Outlet temp, OC : 38...42

Overflow valve

: 1 456 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 9 681 271 022

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.45...3.55 Prestroke mm

: (3.40...3.60) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.2)

Spread cm3 : 0.4

100 s: (0.75)

rpm : 425 2nd speed

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 1.0...1.5

100 s: (0.8...1.8)

cm3 : 0.45 100 s: (0.75) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

Del.quantity : 137.3...142.5)

cm3 : 4.0 Spread

1000 : (7.5)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 11.00

rpm : 1155...1165 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 6.00

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

rpm : 425

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

: 655...715 ₽DM

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10 2nd speed rpm : 700

Rack travel in m: 13.10...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

pm : 500 hPa : 370 Speed rom Pressure

: 12.45...12.55 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : 200

Rack travel in m: 11.40...11.80

2nd pressure hPa : -

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 700 Speed rpm

Del.quantity cm3/: 155.5...159.5

1000 s: (152.5...162.5)

cm3 : -Spread

1000 s: (-)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/:-

1000 s: (102.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

H13

full load rack tr: 11.00

rpm : 1155...1165 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...170.0

1000 s: (145.0...175.0)

HIGH IDLE

1st version

Aneroid pressure h: 1200

Del.quantity cm3/: 47.0...57.0

1000 s: (45.5...58.5)

LOW IDLE

Speed rpm : 425

Del.quantity cm3/: 10.5...15.5

1000 s: (8.0...18.0)

Remarks:

Start-of-delivery mark 13° cam angle

after start of delivery cyl. 1.

Note remarks

: DEE 7.6 9 1 : 19.5.88 Test sheet Edition Replaces : 11.85 : ISO-4113 Test oil

Combination no. : 9 400 231 084

Injection pump

Pump designation : PES6P110A720RS3083-1

Governor

Governor design. : RSV425...1100P2A489

Customer-spec. information Customer : JOHN DEERE

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

Outlet temp, OC : 38...42

Overflow valve

: 1 456 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 9 681 271 022

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55

: (3.40...3.60)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5(0.75)

Time to cyl. no. : 1

BASIC SETTING

Spread

rpm : 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.2)

cm3 : 0.4

100 s: (0.75)

rpm : 425 2nd speed

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 1.0...1.5

100 s: (0.8...1.8)

cm3 : 0.45 Spread

100 s: (0.75)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

Del.quantity : 137.5...139.5 1000 : (134.5...142.5)

cm3 : 4.0 Spread

1000 : (7.5)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 11.00

rpm : 1155...1165 Speed

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

4th rack travel in: 1350

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 6.00

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

Speed rpm : 425 Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 rpm : 655...715 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10 2nd speed rpm : 700

Rack travel in m: 13.10...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 370 Speed rpm Pressure

Rack travel mm : 12.45...12.55

Measurement

1/min : 500 Speed

1st pressure hPa : 200

Rack travel in m: 11.40...11.80

2nd pressure hPa : -

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 700 Speed

Del.quantity cm3/: 155.5...159.5 1000 s: (152.5...162.5)

Spread cm3 :

1000 s: (-)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/:-

1000 s: (102.0...112.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 11.00

rpm : 1155...1165 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0)

HIGH IDLE

1st version

Aneroid pressure h: 1200

Del.quantity cm3/: 47.0...57.0 1000 s: (45.5...58.5)

LOW IDLE

Speed rpm : 425 Del.quantity cm3/ : 10.5...15.5

1000 s: (8.0...18.0)

Remarks:

Start-of-delivery mark 13° cam angle after start of delivery cyl. 1.

Note remarks

: MWM 5,9 a11 Test sheet : 04.03.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 407 083 279

Injection pump

Pump designation : PES6A80D320RS1271

Governor

: RSV350...1400A2B2179 Governor design.

Customer-spec, information Customer : MWM

: D229-6 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30

: (2,15...2,35) Rack travel in mm : 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

H16

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

rpm: 1380 1st speed

Rack travel in mm : 9,45...9,55

Del.quantity cm3/: 5,25...5,35

100 s: (5,05...5,55)

Spread cm3 : 0,25

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 0,75...1,05

100 s: (0,45...1,35)

cm3 : 0.2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 5,1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1380 Speed

52,5...53,5 1000 : (51,0...55,0) cm3 : 2,5 Del.quantity

Spread

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 8,50 Speed rpm : 1420...1430

2nd rack travel in: 4,00

rpm : 1470...1500 Speed 3rd rack travel in: 0,30...1,70

rpm : 1650 Speed

LOW IDLE 1

Control lever

position degrees: 17...25 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6,50 Testing: Speed rpm : 100 Minimum rack trave: 19,00 : 350 rpm Speed Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 : 640...700 Speed rpm rpm : 850 Speed Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1380 Rack travel in m: 9,45...9,55 : 1100 2nd speed rpm Rack travel in m: 9,95...10,25 : 800 3rd speed rpm Rack travel in m: 10,70...10,90 4th speed rpm : 500 Rack travel in m: 10,90...11,00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1100
Del.quantity cm3/ : 54,5...56,5
1000 s: (52,5...58,5
Spread cm3 : 3,5 1000 s: (4,5) : 800 Speed rpm Del.quantity cm3/: 54...56 1000 s: (52...58) cm3 : 3,5 Spread 1000 s: (4.5) rpm : 500 Speed rpm Del.quantity cm3/ : 52...54 1000 s: (50...56) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version Speed : 1420...1430 rpm STARTING FUEL DELIVERY rpm : 100 Rack travel in mm : 19,00...21,00

Speed rpm: 350 Rack travel in mm: 6,40...6,60

Remarks:

LOW IDLE

Note inst. in remarks column

Test sheet : SOF 2,5 0 : 22,07,87 Compl. date: Edition : 22,04,88

replaces

Calibrating oil : ISO 4113

: VE 4/10F2050 R295 Injection pump

: 0 460 404 053 Type number

Customer-specific information Customer : IVECO-SOFIM

: 8144.91.2101 EMM 0E Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm: 0,2 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 600 Charge press. hPa: 800 Setting value mm: 1,8...2,2

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 800

Setting value bar: 5,4...6,0

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 800

Del.quantity cm3/ 1000H.: 59.5...60.5 Dispersion cm3/: 3.0 1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600

Del.quantity cm3/

1000Ha: 45,5...46,5

Low-idle speed regulation:

1/min: 400 Speed Charge press. hPa: -Deliquantity cm3/

1000H.: 13.0...17.0 cm3/: 3.0

Dispersion 1000H.: (3,0)

full-load speed regulation:

Speed 1/min: 2325 Charge press. hPa: 800

Del.quantity cm3/

1000H: 13,0...19,0

Start:

Speed 1/min: 100 Charge press. hPa: -Del.quantity mind cm3/1000H.: 45.0

Load-dependent start of delivery:

Speed 1/min: 600 Charge press. hPa: -

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed Charge press. hPa: 800 TD travel mm: -

mm: 1,5...2,5

1/min: 1500 2nd speed

Charge press. hPa: 800

mm: 6,1...6,9 mm: (5,8...7,2) TD travel

1/min: 2000 3rd speed Charge press. hPa: 800

H18

Del.quantity cm3/: 45,5...46,5 1000H.: (43,5...48,5) TD travel mm: 8,3...9,1 mm: (8,0...9,4)Supply-pump pressure characteristic: Zero delivery (stop): 1st speed 1/min: 600 Charge press. hPa: 800 Electr. shutoff: Supply-pump bar: 3.1...3.7 1/min: 1500 1/min: 400 pressure Speed 2nd speed volt: -ELAB Del.quantity cm3/: 0,0...3,0 Charge press. hPa: 800 1000H.: -Supply-pump max. bar: 5,4...6,0 1/min: 2000 pressure 3rd speed Idle delivery: Charge press. hPa: 800 1/min: 400 Supply-pump 1st speed Del.quantity cm3/: 13,0..17.0 bar: 6,6...7,2 pressure 1000H.: (11,0..19,0) Overflow quantity at overflow valve: 2nd speed 1/min: 450 Del.quantity cm3/: 4,0...9,0 1000H.: -1/min: 600 1st speed Charge press. hPa: 800 1/min: 500 3rd speed Del.quantity cm3/: 3,5...8,5 1000H.: -Oveflow : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 2000 1/min: 700 4th speed Charge press. hPa: 800 Del.quantity cm3/: 1,5...4,5 1000H.: -Over flow : *5*5...138 quantity cm3/10s: (40...153) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 450 1/min: 800 Charge press. hPa: -1st speed Del.quantity cm3/: -Charge-air pressure-setting point hPa: 290 1000H: 47,0 ind. LDA stroke mm: 4,5
Del.quantity cm3/: 49,5...50,5
1000H.: (47,5...52,5)
2nd speed 1/min: 2400
Charge press 5800 2nd speed 1/min: 500 Charge press. hPa: -Del.quantity cm3/: - max. 1000H: 46,0 Charge press. hPa: 800
Del.quantity cm3/: 0.0...3.0
1000H.: -Shutoff electromagnet: 3rd speed 1/min: 2325 Charge press. hPa: 800
Del.quantity cm3/: 13,0...19,0
1000H.: (12,0...20,0)
4th speed 1/min: 2000
Charge press. hPa: 800 Cut-in min. voltage : 10,0 Rated voltage : 12,0 Charge press. hPa: 800 Mounting and assembly dimensions: Del.quantity cm3/: 53,5...56,5 1000H.: (52,5...57,5) Designation 1/min: 1500 K 5th speed mm mm : 5,6...6,0 KF Charge press. hPa: 800 Del.quantity cm3/: -1000H.: (58,0...62,0) mm: 1,1...1,5 MS SVS max. mm : 2,4 1/min: 600 XK mm : 20,0...22,0 6th speed Charge press. hPa: 800 Del.quantity cm3/: 54,5...57,5 1000H.: -XL. mm : 9,7...13,3 Remarks: 7th speed 1/min: 600 Correction at adjusting nut (46) Charge press. hPa: -

Note inst. in remarks column

: SOF 2,5 0 1 : 14,03,88 Test sheet Compl. date: Edition : 22,04,88

replaces

Calibrating oil : ISO 4113

: VE 4/10F2050 R295-1 Injection pump

Type number : 0 460 404 060

Customer-specific information Customer : IVECO-SOFIM

: 8144.91.2101 THEMA Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm : 0,2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 600 Charge press. hPa: 800 Setting value mm: 1,8...22

Supply-pump pressure:

1/min: 1500 Change press. hPa: 800 Setting value bar: 5,4...6,0 Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 800

Del.quantity cm3/ 1000H.: 59,5...60,5 Dispersion cm3/: 3,0 1000H : (3,0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Deliquantity cm3/

1000H.: 45,5...46,5

Low-idle speed regulation:

Speed 1/min: 400 Charge press. hPa: -Deliquantity cm3/

1000H.: 13.0...17.0 cm3/: 3.0

Dispersion

1000H.: (3,0)

Full-load speed regulation:

1/min: 2325 Speed Charge press. hPa: 800

Deliquantity cm3/

1000H: 13,0...19,0

Start:

1/min: 100 Speed Charge press. hPa: -Del. quantity mind cm3/1000H.: 45,0

Load-dependent start of delivery:

Speed 1/min: 600 Charge press. hPa: -

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed Charge press. hPa: 800

TD travel mm: -

mm: 1,5...2,5

1/min: 1500 2nd speed Charge press. hPa: 800 TD travel

mm: 6,1...6,9 mm: (5,8...7,2)

3rd speed 1/min: 2000 Charge press. hPa: 800

H21

Del.quantity cm3/: 45,5...46,5 1000H.: (43,5...48,5) mm: 8,3...9,1 mm: (8,0...9,4) Supply-pump pressure characteristic: Zero delivery (stop): 1st speed 1/min: 600 Charge press. hPa: 800 Electr. shutoff: Supply-pump bar: 3,1...3,7 1/min: 1500 1/min: 400 pressure Speed ELAB 2nd speed volt: -Charge press. hPa: 800 Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Supply-pump bar: 5,4...6,0 1/min: 2000 pressure 3rd speed Idle delivery: Charge press. hPa: 800 Supply-pump 1st speed 1/min: 400 Del.quantity cm3/: 13.0..17.0 1000H.: (11.0..19.0) bar: 6,6...7,2 pressure Overflow quantity at overflow valve: 2nd speed 1/min: 450 Del.quantity cm3/: 4,0...9,0 1000H.: -1/min: 600 1st speed Charge press. hPa: 800 3rd speed 1/min: 500 Del.quantity cm3/: 3,5...8,5 1000H.: -: 41...83 Oveflow quantity cm3/10s: (26...98) 2nd speed 1/min: 2000 1/min: 700 4th speed Charge press. hPa: 800 Overflow : 55... Del.quantity cm3/: 1,5...4,5 1000H.: -: 55...138 quantity cm3/10s: (40...153) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1/min: 450 1st speed Charge press. hPa: -1/min: 800 1st speed Deliquantity cm3/: -Charge-air pressure-setting point hPa: 290 ind. 1000H: 47,0 LDA stroke mm: 4.5
Del.quantity cm3/: 49.5...50.5
1000H.: (47.5...52.5) 2nd speed 1/min: 500 Charge press. hPa: -1/min: 2400 Del.quantity cm3/: - max. 1000H: 46,0 2nd speed Charge press. hPa: 800 Del.quantity cm3/: 0,0...3,0 1000H.: -Shutoff electromagnet: 1/min: 2325 3rd speed Charge press. hPa: 800 Cut-in Del.quantity cm3/: 13.0...19.0 1000H.: (12.0...20.0) : 10,0 min. voltage Rated voltage : 12,0 1/min: 2000 4th speed Change press. hPa: 800 Mounting and assembly dimensions: Del.quantity cm3/: 53,5...56,5 1000H.: (52,5...57,5) Designation 1/min: 1500 K 5th speed mm KF : 5,6...6,0 Charge press. hPa: 800 mm Del.quantity cm3/: -1000H.: (58,0...62,0) 5ر1...1ر1 : mm MS SVS max. mm mm : 20,0...22,0 1/min: 600 XK 6th speed Charge press. hPa: 800 XL. mm : 9,...13,3 Del.quantity cm3/: 54,5...57,5 1000H.: -Remarks: 7th speed 1/min: 600 Correction at adjusting nut (46) Charge press. hPa: -

TD travel

Note inst. in remarks column

Test sheet : VWW 2,3 B1 : 15.02.88 Edition : 04.86 replaces

: ISO 4113 Calibrating oil

: VE 6/10F2400 L32 Injection pump Type number : 0 460 406 003

Customer-specific information

Customer

Engine : 087-VOL 2,4L

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness mm : 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Setting value mm: 2.8...3,2

Supply-pump pressure:

1/min: 1500 Setting value bar: 5,3...5,8

Full-load del. w/out charge press.:

1/min : 1500 Speed

Del.quantity cm3/

1000H.: 28,5...29,5

Dispersion cm3/: 2,5 1000H.: (3,0)

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/

1000H.: 6,0...10,0

cm3/: 2,0 Dispersion

1000H.: (3,0)

Full-load speed regulation:

1/min: 2700 Speed

Del.quantity cm3/

1000H: 7,0...11,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 35,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000

TD travel mm: 0,8...1,6 mm: (0,5...1,9)

2nd speed 1/min: 1500 TD travel

mm: 2,8...3,2 mm: (2,3...3,7)

1/min: 2400 3rd speed

mm: 5,7...6,5 mm: (5,4...6,8) TD travel

Supply-pump pressure characteristic:

1/min: 750 1st speed

Supply-pump

bar: 3,2...3,8 1/min: 1500 pressure

2nd speed

Supply-pump

bar: 5,3...5,8 pressure

1/min: 2400 3rd speed

Supply-pump

pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1/min: 750 1st speed

: 41...83 Oveflow

quantity cm3/10s: (26...98) 1/min: 2400 2nd speed

: 55...138 Overflow

quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:
1st speed 1/min: 2700 Del.quantity cm3/: 7.0011.0
1000H.: (5.013.0) 2nd speed 1/min: 2800 Del.quantity cm3/: 0,06.0
1000H.: - 3rd speed 1/min: 2625 Del.quantity cm3/: 14,524,5 1000H.: (13,525,5)
4th speed 1/min: 2400 Del.quantity cm3/: 23_025_0
1000H.: (21,826,2) Sth speed 1/min: 1500 Del.quantity cm3/: -
1000H.: (26,831,2) 6th speed
Zero delivery (stop):
Electr. shutoff:
Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
Idle delivery:
1st speed 1/min: 375 Del.quantity cm3/: 6,010,0 1000H.: (4,012,0) 2nd speed 1/min: 600 Del.quantity cm3/: 0,04,0 1000H.: -
Automatic starting fuel delivery:
1st speed 1/min: 400 Del.quantity cm3/: - ind. 1000H: 20,0
2nd speed 1/min: 500 Del.quantity cm3/: - max. 1000H: 25,0
Shutoff electromagnet:
Cut-in min. voltage : 10,0 Rated voltage : 12,0
Mounting and assembly dimensions:
Designation K mm : 3,23,4
H25

KF mm : 6,2...6,6 ms : 1,4...1,8 svs max. mm : 4,1 xk mm : 17,0...19,0 xL mm : 9,7...13,1 Remarks:

Note inst. in remarks column

: ONA 3,4 A : 21.03.88 Test sheet Compl. date: : 22.04.88 Edition : 16.11.87 replaces Calibrating oil : ISO-4113

: VE 6/10F1800 R209 Injection pump : 0 460 406 048 Type number

Customer-specific information Customer : ONAN

: L 634 T Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

mm: 0,2 Prestroke

(from BDC): +/-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

1/min: 1400 Speed Charge press, hPa: 800

Setting value mm: 4,3...4,7

Supply-pump pressure:

1/min: 1400 Speed Charge press. hPa: 800 Setting value bar: 4,8...5,4

H26

Full-load del. with charge press.:

1/min: 1400 Charge press. hPa: 800

Deliquentity cm3/

1000H.: 58,5...59,5

cm3/:3.0Dispersion 1000H : (4,0)

Full-load del. w/out charge press.:

Speed 1/min : 700

Deliquantity cm3/

1000H.: 44,0...45,0

Low-idle speed regulation:

1/min: 400 Speed Charge press. hPa: -

Del.quantity cm3/ 1000H.: 14,0...18,0 Dispersion cm3/: 3,0 1000H.: (3,0)

Full-load speed regulation:

1/min: 1900 Speed Charge press. hPa: 800

Del.quantity cm3/

1000H: 37,0...43,0

Start:

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 42,0

Load-dependent start of delivery:

1/min: 1400 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 800 1st speed hPa: 800 Charge press.

mm: 1,4...2,2 TD travel mm: (1,1...2,5)

1/min: 1400 2nd speed

hPa: 800 Charge press.

mm: 4,3...4,7 mm: (3,8...5,2) TD travel

3rd speed 1/min: 1800

Charge press. hPa: 800 TD travel mm: 5,8...6,6

mm: (5, 5, ..., 6, 9)

Supply-pump pressure characteristic:	Charge press. hPa: 800 Del.quantity cm3/: 58,061,0 1000H: -
1st speed 1/min: 800	9th speed 1/min: 700
Charge press. hPa: 800	Charge press. hPa: -
Supply-pump 1	Deliquantity cm3/: 44,045,0
pressure bar: 2,73,3	1000H: (42,246,8)
2nd speed 1/min: 1400	The state of the s
Charge press. hPa: 800	Zero delivery (stop):
Supply-pump pressure bar: 4,85,4 3rd speed 1/min: 1800	Mech. shutoff:
3rd speed 1/min: 1800	recht shatori.
Charge press. hPa: 800	Speed 1/min: 1800
Supply-pump !	Del.quantity cm3/: 03 1000H.: -
pressure bar: 6,06,6	1000H.: -
Overflow quantity at overflow valve:	Electr. shutoff:
1st speed 1/min: 700	Speed 1/min: 350
Charge press. hPa: 800	ELAB volt: -
Oveflow : 4183 quantity cm3/10s: (2698)	Del.quantity cm3/: 0,03,0 max. 1000H.: -
2nd speed 1/min: 1800	iida, 1000iii.
Charge press. hPa: 800	Idle delivery:
Overflow : 55138	·
quantity cm3/10s: (41153)	1st speed 1/min: 400
	Del.quantity cm3/: 14.018.0 1000H.: (12.020.0)
Delivery-quant. and breakaway char.:	1000H.: (12,020,0)
1st speed 1/min: 700	2nd speed 1/min: 450 Del.quantity cm3/: 0,06,0
1st speed 1/min: 700 i Charge-air pressure-setting I	1000H.: -
point hPa: 300	3rd speed 1/min: 350
LDA stroke mm: 5,1	Del.quantity cm3/: 26,533,5
Del.ouantity cm3/: 50.551.5	1000H.: (26,034,0)
1000H.: (48.753.3)	
and speed 1/min: 2000	Automatic starting fuel delivery:
Charge press. hPa: 800	1nt 2000d 1/min 220
Del.quantity cm3/: 0,03,0 1 1000H.: -	1st speed
3rd speed 1/min: 2000	ind. 1000H: 42,0
Charge press. hPa: 800	77.03
Del.quantity cm3/: 5,514,5	2nd speed 1/min: 300
1000H.: -	Del.quantity cm3/: -
4th speed 1/min: 1950	max. 1000H: 42,0
Charge press, hPa: 800	Charteff alactromanati
Del.quantity cm3/: 23,031,0 1000H.: (22,032,0)	Shutoff electromagnet:
5th speed 1/min: 1900	Cut-in
Change press. hPa: 800	min. voltage : 10,0
Del.quantity cm3/: 37,043,0	Rated voltage : 12,0
1000H.: (36,044,0)	
6th speed 1/min: 1800	Mounting and assembly dimensions:
Charge press. hPa: 800	Dani santi sa
Del.quantity cm3/: 51,554,5 1000H.: (51,255,8)	Designation K mm : -
7th speed 1/min: 1400	K mm : - KF mm : 5,66,0
Charge press. hPa: 800	MS mm : 0,61,0
Del. quantity cm3/: 58,559,5	SVS max. mm : 1,7
1000H.: (56,761,3)	0ر220ر xK mm : 2022
8th speed 1/min: 700	XL mm : 10,113,5

Remarks:	
Correction at adjusting nut (46)	

Note inst. in remarks column

Test sheet : VWW 2.4 S1 : 23.09.87 Compl. date: : 16.02.88 Edition : 19.12.86 replaces : ISO 4113 Calibrating oil

: VE 6/10F2400 L216 Injection pump : 0 460 406 049 Type number

Customer-specific information

Customer : VW

: 087T-VOL LLK Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar : 147...150 pressure

Test in . tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 800 Setting value mm: 1,4...8

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 800 Setting value bar: 5,7...6,3

Full-load del. with charge press.:

1/min: 1500 Speed

J01

Change press. hPa: 800

Del quantity cm3/

1000H.: 45,5...46,5

cm3/: 2,5 Dispersion 1000H : (3.0)

Full-load del. w/out charge press.:

1/min : 600 Speed

Del.quantity cm3/

1000H.: 25,5...26,5

Low-idle speed regulation:

1/min: 415 Speed

Del.quantity cm3/ 1000H.: 6,0...10,0

cm3/: 2,0 1000H.: (3,0) Dispersion

Full-load speed regulation:

1/min: 2675 Charge press. hPa: 800

Del.quantity cm3/

1000H: 14,0...18,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 40,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1200 1st speed Charge press. hPa: 800

TD travel mm: 0,2...0,8 mm: (0,0...1,3)

2nd speed 1/min: 1500 Charge press. hPa: 800

TD travel mm: 1,4...1.8 mm: (0,9...2,3)
3rd speed 1/min: 2000 TD travel

Charge press. hPa: 800 TD travel

mm: 2,7...3,5 mm: (2,4...3,8)

1/min: 2400 4th speed Charge press. hPa: 800

mm: 4,1...4,9 mm: (3,8...5,2) TD travel

Supply-pump pressure characteristic:

1/min: 600 1st speed Charge press. hPa: 800

9th speed 1/min: 600 Del.quantity cm3/: 25,5...26,5 1900H: (23,0...29,0) Supply-pump bar: 3,3...3,9 pressure bar: -1/min: 1500 2nd speed hPa: 800 Zero delivery (stop): Charge press. Supply-pump bar: 5,7...6,3 pressure bar: -Electr. shutoff: 1/min: 2400 3rd speed hPa: 800 Charge press. Speed 1/min: 415 ELAB Supply-pump volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: bar: 7,9...8,5 pressure bar: -Overflow quantity at overflow valve: Idle delivery: 1st speed 1/min: 600 1st speed 1/min: 415 Del.quantity cm3/: 6.0...10.0 1000H.: (4.0...12.0) 2nd speed 1/min: 750 Oveflow : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 2400 Charge press. hPa: 800 Overflow : 55... Del.quantity cm3/: 0,0...4,0 1000H.: -: 55...138 quantity cm3/10s: (40...153) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1/min: 230 1st speed 1/min: 800 Charge press. hPa: -1st speed Del.quantity cm3/: -ind. 1000H: 40,0 Charge-air pressure-setting LDA stroke mm: 5,7
Del.quantity cm3/: 34,0...35,0
1000H.: (31,5...37,5)
2nd speed 1/min: 2675
Charge press. hps. 900 hPa: 300 point 2nd speed 1/min: 380 Charge press. hPa: -Del.quantity cm3/: - max. 1000H: 30,0 Charge press. hPa: 800 Del.quantity cm3/: 14.0...18.0 1000H.: (12.0...20.0) 3rd speed 1/min: 2850 Shutoff electromagnet: Charge press. hPa: 800 Del.quantity cm3/: 0,0...6,0 1000H.: -Cut-in : 10,0 min. voltage Rated voltage : 12,0 1/min: 2575 4th speed Charge press. hPa: 800 Mounting and assembly dimensions: Dei.quantity cm3/: 25.0...35.0 1000H.: (24.0...36.0) Designation 1/min: 2400 K mm : 3,2...3,45th speed **KF** mm: 6,2...6,6 Charge press. hPa: 800 Del.quantity cm3/: 37.5...39.5 1000H.: (36.3...40.7) 6th speed 1/min: 1500 mm : 1,6...2,0MS mm : 3,2 mm : 17,0...19,0 mm : 9,7...13,1 SVS max. XΚ Charge press. hPa: 800 XL Del.quantity cm3/: -1000H.: (43,8...48,2) Remarks: 1/min: 800 7th speed Charge press. hPa: 300
Del.quantity cm3/: 1000H.: (31.5...37.5)
8th speed 1/min: 600 Correction at adjusting nut (46) Charge press. hPa: 800 Del.quantity cm3/: 38.5...41.5 1000H: (37.0...43.0)

Note inst. in remarks column

: ONA 3,4 B Test sheet Edition : 22.04.88 replaces : 16.11.87 Calibrating oil : ISO-4113

: VE 6/10F1400 R209-1 Injection pump

Type number : 0 460 406 052

Customer-specific information

Customer

Engine : L 634 T

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0,2

(from BDC): +/-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 800 mm: 2,7...3,3 Setting value

Supply-pump pressure:

Speed 1/min: 1100 Charge press. hPa: 800 Setting value bar: 3,8...4,4 Full-load del. with charge press.:

Speed 1/min: 1100 Charge press. hPa: 800

Charge press. m. a. Del.quantity cm3/ 1000H.: 61,0...62,0 Dispersion cm3/: 3,0 1000H : (3,0)

Full-load del. w/out charge press.:

1/min: 700 Del.quantity cm3/

1000H.: 44,5...45,5

Low-idle speed regulation:

1/min: 400 Speed Charge press. hPa: -Deliquantity cm3/

1000H.: 14.0...18,0 cm3/: 3,0

Dispersion 1000H.: (3,0)

Full-load speed regulation:

1/min: 1480 Speed Charge press. hPa: 800

Del.quantity cm3/

1000H: 42,0...46,0

Start:

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 42,0

Load-dependent start of delivery:

1/min: 1100 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800 Charge press. hPa: 800

mm: 1,4...2,2 TD travel mm: (1,1...2,5

2nd speed 1/min: 1100 Charge press. hPa: 800

mm: 2,7...3,3 mm: (2,3...3,7) TD travel

1/min: 1400

3rd speed Charge press. hPa: 800

mm: 4,3...4,7 mm: (3,8...5,2) TD travel

Supply-pump pressure characteristic:	Del.quantity cm3/: 44,545,5 1000H: (42,747,3)
1st speed 1/min: 700 Charge press. hPa: 800 i	Zero delivery (stop):
Supply-pump pressure bar: 2,32,9	Mech. shutoff:
Charge press. hPa: 800	Speed 1/min: 1400 Del.quantity cm3/: 03
pressure bar: 3,84,4	1000H.: -
Charge press. hPa: 800 Supply-pump pressure bar: 4,85,4	Electr. shutoff:
pressure bar: 4,85,4	Speed 1/min: 350 ELAB volt: -
Overflow quantity at overflow valve:	Del.quantity cm3/: 0,03,0 max. 1000H.: -
1st speed 1/min: 700 Charge press. hPa: 800 1 Oveflow : 4183 1	Idle delivery:
quantity cm3/10s: (2698)	1st speed 1/min: 400
quantity cm3/10s: (2698) 2nd speed 1/min: 1400	Del.quantity cm3/: 14,018,0
Charge press. hPa: 800	(0ر2020 : .1000H.: 12
Overflow : 55138 !	2nd speed 1/min: 450
quantity cm3/10s: (40153)	Del.quantity cm3/: 0,06,0 1000H.: -
Delivery-quant. and breakaway char.:	3rd speed 1/min: 350
	Del.quantity cm3/: 26,533,5
1st speed 1/min: 700	1000H.: -
Charge-air pressure-setting !	
point hPa: 200	Automatic starting fuel delivery:
LDA stroke mm: 5.7	1et coord 1/min 220
Del.quantity cm3/: 47,048,0 1000H.: (45,249,8)	1st speed 1/min: 220
2nd speed 1/min: 1600	Del.quantity cm3/:- ind. 1000H: 42,0
Charge press. hPa: 800	
Del.quantity cm3/: 0,06,0	2nd speed 1/min: 300
1000h.: -	Delouantity cm3/: -
3rd speed 1/min: 1560 !	max. 1000H : 42,0
Charge press. hPa: 800	
Del.quantity cm3/: 14,022,0 1000H.: -	Shutoff electromagnet:
4th speed 1/min: 1480	Cut-in
Charge press. hPa: 800	min. voltage : 10,0
Del.quantity cm3/: 42,046,0	Rated voltage : 12,0
1000H.: (40,048,0)	
5th speed 1/min: 1400	Mounting and assembly dimensions:
Charge press. hPa: 800	Analys Alas
Del.quantity cm3/: 56.559.5	Designation
1000H.: (55,760,3) 6th speed 1/min: 1100	K mm : - KF mm : 5,66,0
6th speed 1/min: 1100 Charge press. hPa: 800	MS mm : 0,66,0
Del.quantity cm3/: 61_062_0	SVS max. mm : 1,7
1000H.: (59,263,8)	XK mm : 20,022,0
7th speed 1/min: 700	گر 12
Change press. hPa: 800	
Del.quantity cm3/: 58,060,0 1000H.: -	Remarks:
8th speed 1/min: 700	
Charge press. hPa: -	Correction at adjusting nut (46)

Note inst. in remarks column

: VOL 3,1 H Test sheet : 13. 1.88 Edition

replaces

Calibrating oil : ISO-4113

: VE 4/11F1900 L217-1B Injection pump

: 0 460 414 028 Type number

Customer-specific information Customer : VOLVO PENTA

: TAMD 31 95 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery

Prestroke

e mm: 0,3 (from BDC): +/-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Speed Charge press. hPa: 1000 Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 1500 Charge press. hPa: 1000 Setting value bar: 6,1...6,7 Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 93,5...94,5

cm3/:-Dispersion 1000H: 5,0

Full-load del. w/out charge press.:

1/min : 650 Speed

Del.quantity cm3/

1000H.: 58,5...59,5

Low-idle speed regulation:

Speed 1/min: 350

Del.quantity cm3/

1000H.: 23...27

Dispersion cm3/: -

1000H.: 3,5

Full-load speed regulation:

1/min: 2100 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 14,5...20,5

Start:

Speed 1/min: 100 Del quantity cm3/1000H.: 95,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 1st speed Charge press. hPa: 1000

mm: 0.5...1.3 mm: (0.2...1.6)TD travel

1/min: 1500 2nd speed Charge press. hPa: 1000

mm: 2,3...2,7 TD travel

mm: (1,8...3,2)3rd speed 1/min: 1900

Charge press. hPa: 1000

mm: 4,1...4,9 mm: (3,8...5,2) TD travel

Supply-pump pressure characteristic:

1st speed 1/min: 700 Charge press. hPa: 1000

Supply-pump bar: 3,4...4,1 1/min: 1500 pressure Mech. shutoff: 2nd speed Charge press. hPa: 1000 Speed 1/min: 1900 Del.quantity cm3/: 0..3 1000H.: -Supply-pump bar: 6,1...6,7 1/min: 1900 pressure 3rd speed Charge press. hPa: 1000 Electr. shutoff: Supply-pump bar: 7,5...8,1 1/min: 350 pressure Speed ELAB volt: 24,0 Del.quantity cm3/: 0...3.0 max. 1000H.: -Overflow quantity at overflow valve: 1/min: 700 1st speed Charge press. hPa: 1000 Idle delivery: : 41...83 Oveflow quantity cm3/10s: (26...98) 2nd speed 1/min: 1900 1st speed 1/min: 350 Del.quantity cm3/: 23,0..27,0 1000H.: (20,0..30,0) Charge press. hPa: 1000 2nd speed 1/min: 400
Del.quantity cm3/: 7.0...13.0
1000H.: (5.5...14.5) Overflow | : 55...138 quantity cm3/10s: (40...153) 1/min: 480 Delivery-quant. and breakaway char.: 3rd speed Del.quantity cm3/: 0,0...3,0 1000H.: -1st speed 1/min: 800 Charge-air pressure-setting hPa: 300 point Mounting and assembly dimensions: LDA stroke mm: 6.7
Del.quantity cm3/: 84.0...85.0
1000H.: (82.2...86.8)
2nd speed 1/min: 2200 KF mm : K-0T mm : 1,1...1,5 mm : 3,8 mm : 18,8...20,8 MS SVS max. Charge press. hPa: 1000 ХK Del.quantity cm3/: -XL mm: 14,3...17,7 1000H.: 0,0...3,0 1/min: 2100 3rd speed Remarks: Charge press. hPa: 1000 Del.quantity cm3/: 14.5...20.5 1000h.: (13.5...21.5) Correction at adjusting nut (46) 1/min: 1900 4th speed Charge press. hPa: 1000
Del.quantity cm3/: 85_0...88_0
1000H.: (83_5...89_5)
Sth speed 1/min: 1500 Charge press. hPa: 1000 Del.quantity cm3/: 93,5...94,5 1000H.: (91,7...96,3) 1/min: 1200 6th speed Charge press. hPa: 1000 Del.quantity cm3/: 97.7...100.3 1000H.: (96.7...101.3) 7th speed 1/min: 700 Charge press. hPa: 1000 Del.quantity cm3/: 96.5...99.5 1000H.: (95.0...101.0) 1/min: 650 8th speed Charge press. hPa: Del.quantity cm3/: 58.5...59.5 1000H: (56.7...61.3) Zero delivery (stop):

Note inst. in remarks column

: VOL 3,1 A3 Test sheet : 18.05.87 Compl. date: : 17.02.88 Edition

replaces

: ISO 4113 Calibrating oil

Injection pump : VE 4/11F1900 L217-3B 0 460 414 032

Type number

Customer-specific information : VOLVO PENTA

: TMD 31 Engine

k: 74 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar : 130...133 pressure

Test inj. tubing : 1 688 750 013

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery

Prestroke mm : 0,3

(from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Speed Charge press. hPa: 1000 mm: 3,3...3,7 Setting value

Supply-pump pressure:

Speed 1/min: 1500 Charge press. hPa: 1000 Setting value bar: 6,4...70

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 1000 Del.quantity cm3/ 1000H.: 72,0...73,0

cm3/:5,0Dispersion 1000H : -

Full-load del. w/out charge press.:

 $1/\min : 650$

Del.quantity cm3/

1000H.: 54,0...55,0

Low-idle speed regulation:

1/min: 350 Speed

Del.quantity cm3/ 1000H.: 18.0...22.0 Dispersion cm3/: 3,5

1000H.: -

Full-load speed regulation:

Speed 1/min: 2150 Charge press. hPa: 1000

Deliquantity cm3/

1000H: 12,0...18,0

Start:

Speed 1/min: 100

Del.quantity

cm3/1000H.: 90,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 1st speed Charge press. hPa: 1000

mm: 1,6...2,4 TD travel

mm: (1,3...2,7)1/min: 1500 2nd speed Charge press. hPa: 1000

TD travel mm: --

mm: (2,8...4,2)

1/min: 1900 3rd speed Charge press. hPa: 1000 TD travel

mm: 4,1...4,9 mm: (3,8...5,2)

Supply-pump pressure characteristic:

1/min: 1900 Speed Del.quantity cm3/: 0..3 1000H.: -1/min: 800 1st speed Charge press. hPa: 1000 Supply-pump bar: 3,9...4,5 1/min: 1500 Electr. shutoff: pressure 2nd speed Charge press. hPa: 1000 Speed 1/min: 350 ELAB volt: 12,0 Supply-pump Del.quantity cm3/: 0,0...3,0 max. 1000H.: bar: 6,4...7,0 1/min: 1900 pressure 3rd speed Charge press. hPa: 1000 Supply-pump Idle delivery: bar: 7,7...8,3 pressure 1/min: 350 1st speed Del.quantity cm3/: 18,0..22,0 1000H.: (15,0..25,0) Overflow quantity at overflow valve: 1/min: 650 1/min: 400 1st speed 2nd speed Del.quantity cm3/: 4,5...10,5 1000fi.: (3,0...12,0) 3rd speed 1/min: 450 Oveflow : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 1900 Charge press. hPa: 1000 Del.quantity cm3/: 0,0...3,0 1000H.: -Over Flow : *55...*138 quantity cm3/10s: (40...153) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1/min: 400 1st speed 1/min: 800 Del.quantity cm3/: -1st speed 1000H: 70,0 Charge-air pressure-setting ind. hPa: 300 point LDA stroke mm: 6,3
Del.quantity cm3/: 67,5...68,5
1000H.: (65,7...70,3)
2nd speed 1/min: 2150 2nd speed 1/min: 500 Del.quantity cm3/: -max. 1000H: 65,0 Charge press. hPa: 1000 Del.quantity cm3/: 12.0...18.0 1000H.: (11.0...19.0) 3rd speed 1/min: 2220 Shutoff electromagnet: Cut-in : 10,0 min. voltage Charge press. hfa: 1000 : 12,0 Rated voltage Del.quantity cm3/: 0,0...3,0 1000H.: -Mounting and assembly dimensions: 4th speed 1/min: 1900 Charge press. hPa: 1000
Del.quantity cm3/: 67,5...70,5
1000H.: (66,0...72,0)
Sth speed 1/min: 1500 Designation mm KF : K OT mm mm : 1,1...1,5 mm : 3,8 mm : 18,8...20,8 MS Charge press. hPa: 1000 SVS max. Del.quantity cm3/: -1000H.: (70,2...74,8) XK XL mm : 15,4...18,8 1/min: 800 6th speed Charge press. hPa: 1000 Remarks: Del.quantity cm3/: 73.0...75.0 1000H.: (71.5...77.5) 1/min: 650 Correction at adjusting nut (46) 7th speed Del.quantity cm3/: 54,0...55,0 1000H.: (62,2...56,8) Zero delivery (stop):

Mech. shutoff:

Note inst. in remarks column

: PER 5,0 A Test sheet Compl. date: : 11.11.78 Edition : 19.04.88

replaces

Calibrating oil : ISQ 4113

Injection pump : VE 4/11F1500 R275 : 0 460 414 046

Type number

Customer-specific information : PERKINS Customer

Engine : 500 SERIES FLT BS

TEST BENCH REQUIREMENTS

Calibrating-oil oc

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar : 130...133 pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery

Prestroke

e mm: 0,5 (from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1100 Setting value mm: 2,5...2,9 KSB solenoid-operated

valve volt: 12,0

Supply-pump pressure:

1/min: 1100 Speed Setting value bar: 4,9...5 KSB solenoid-operated volt: 12.0

Full-load del. w/out charge press.:

1/min: 600 Speed

Deliquantity cm3/

1000H.: 23,0...24,0

KSB solenoid-operated volt: 12.0 cm3/: 3.5 1000H.: (3.5) Dispersion

Low-idle soeed regulation:

1/min: 300

Del.quantity cm3/ 1000H.: 10,0...14,0

KSB solenoid-operated valve volt: 12,0 cm3/: 3.0Dispersion 1000H.: (3,0)

Full-load speed regulation:

1/min: 1550 Speed

Deliquantity cm3/

1000H: 26,0...38,0

KSB solenoid-operated valve volt: 12.0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 70,0 mind KSB solenoid-operated valve volt: 12,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 700 1st speed

mm: 1,5...2,9 mm: (1,4...3,0) TD travel

KSB solenoid-operated

volt: valve 1/min: 700 2nd speed

TD travel mm: 0,1...0,9

mm: (0,0...1,2)KSB solenoid-operated

volt: 12,0 valve

3rd speed 1/min: 1100 TD travel mm: -

mm: (2,0...3,4)

KSB solenoid-operated valve volt: 12,0

KSB solenoid-operated 4th speed 1/min: 1350 volt: 12,0 TD travel mm: 3,6...4,4Del.quantity cm3/: 41.5...44.5 1000H.: (40.0...46.0) mm: (3,3...4,7)KSB solenoid-operated volt: 12.0 1/min: 1500 1/min: 1100 valve 5th speed KSB solenoid-operated 5th speed valve volt: 12.0
Del.quantity cm3/: 43.5...46.5
1000H.: (42.0...48.0)
6th speed 1/min: 800 mm: 3,7...4,5 mm: (3,4...4,8) TD travel KSB solenoid-operated valve volt: 12,0 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 32,0...34,0 1000H.: -Supply-pump pressure characteristic: 1/min: 700 1st speed Supply-pump 7th speed 1/min: 600 bar: 3,5...4,1 pressure KSB solenoid-operated KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: -1000H.: (21_0...26_0) volt: 12,0 1/min: 1100 2nd speed Supply-pump bar: 4,9...5,5 Zero delivery (stop): pressure KSB solenoid-operated volt: 12.0 1/min: 1500 valve Electr. shutoff: 3rd speed Supply-pump 1/min: 300 bar: 6,4...7₀0 pressure Speed ELAB volt: -KSB solenoid-operated Del.quantity cm3/: 0,0...3,0 max. 1000H.: valve volt: 12.0 Overflow quantity at overflow valve: Idle delivery: 1st speed 1/min: 600 KSB solenoid-operated 1st speed 1/min: 300 KSB solenoid-operated valve volt: 12,0 volt: 12,0 : 41...83 Oveflow valve quantity cm3/10s: (26...98) 2nd speed 1/min: 1500 Del.quantity cm3/: -1000H:: 8.0...16.0 2nd speed 1/min: 350 KSB solenoid-operated volt: 12,0 KSB solenoid-operated valve : 55...138 Overflow volt: 12,0 valve Del.quantity cm3/: 3.0...9.0 1000H.: (1.5...10.5) quantity cm3/10s: (40...153) 1/min: 430 Delivery-quant. and breakaway char.: 3rd speed KSB solenoid-operated 1/min: 1630 volt: 12,0 1st speed valve Del.quantity cm3/: 0,0...3,0 1000H.: -KSB solenoid-operated valve volt: 12.0 Del.quantity cm3/: 0.0...3.0 1000H.: -Automatic starting fuel delivery: 1/min: 1570 2nd speed KSB solenoid-operated 1/min: 300 1st speed volt: 12,0 KSB solenoid-operated valve Del.quantity cm3/: 14,0...26,0 1000H.: volt: 12,0 valve Del.quantity cm3/: -1/min: 1550 1000H: 29,0 3rd speed ind. KSB solenoid-operated volt: 12,0 1/min: 400 valve 2nd speed Del.quantity cm3/: -1000H.: (26.0...38.0) 4th speed 1/min: 1500 KSB solenoid-operated valve volt: 12,0

Del.quantity cm3/: - max. 1000H : 35,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : KF mm : K-0T
MS mm : 1,2.1.45
SVS max. mm : 3,1
XK mm : 17,0...19,0
XL mm : 11,9...15,3

:

Remarks:

Note inst. in remarks column

: STE 3,1 B Test sheet : 13. 1.88 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F1200 R94-3

: 0 460 414 061 Type number

Customer-specific information Customer : STEYR

: WD 408.45 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil CC return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness : 2 x Length mm: 840

Start of delivery Prestroke mm : -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1000 Speed Setting value mm: 5,3...5,7

Supply-pump pressure:

1/min: 1000 Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

1/min : 1000 Speed

Del.quantity cm3/

1000H.: 63,0...64,0

cm3/: -Dispersion 1000H.: 3.5

Low-idle speed regulation:

1/min: 300 Speed

Del.quantity cm3/ 1000H.: 13,0...17,0

cm3/: · Dispersion

1000H.: 3,5

Full-load speed regulation:

Speed 1/min: 1300

Deliquantity cm3/

1000H: 14,0...20,0

Start:

Speed 1/min: 100 Del quantity mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed

TD travel mm: 0,9...1,7 mm: (0,6...2,0)

2nd speed 1/min: 1000

TD travel mm: 5,3...5,7

mm: (4,8...6,2)1/min: 1200 3rd speed

TD travel mm: 7,0...7,8

mm: (6, 7, 8, 1)

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 3,3...3,9 pressure

1/min: 1000 2nd speed

Supply-pump

bar: 5,2...5,8 pressure

1/min: 1200 3rd speed

Supply-pump

bar: 6,1...6,7 pressure

Overflow quantity at overflow valve:

1/min: 500 1st speed

Oveflow : 41...83 quantity cm3/10s: (26...98)

1/min: 2400 2nd speed

Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1350 Del.quantity cm3/: 0...2,6 1000H.: -1/min: 1300 2nd speed Dei.quantity cm3/: 14,0...20,0 1000H.: (13,0...21,0) 1/min: 1200 3rd speed Del.quantity cm3/: 60,5...63,5 1000H.: (59,7...64,3) 1/min: 1000 4th speed Del.quantity cm3/: 63,0...64,0 1000H:: (61,2...65,8) 1/min: 800 5th speed Del.quantity cm3/: 61,5...64,5 1000H.: -1/min: 500 6th speed Del.quantity cm3/: 57,0...60.0 1000H.: (56,0...61,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1200 Del.quantity cm3/: 0..3 1000H.: -Idle delivery: 1/min: 380 1st speed Del.quantity cm3/: 0...2,6 1000H.: -2nd speed 1/min: 330 Del.quantity cm3/: 3,0...9,0 1000H.: (2,0...10,0) 1/min: 300 3rd speed Del.quantity cm3/: 13,0..17,0 1000H.: (11,0..19,0) Automatic starting fuel delivery: 1/min: 170 1st speed cm3/: -Del.quantity 1000H: 75,0 ind. 2nd speed 1/min: 250 Del.quantity cm3/: -1000H : 60,0 max. Mounting and assembly dimensions: Designation : 3,2...3,4 : 5,3...5,7 mm KF min MS 2ر1...8ر0 : mm

SVS max. mm : 3,3 XK mm : 17,0...19,0 XL mm : 11,3...14,7

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Remarks:

. . .

Note inst. in remarks column

: CUM 3,9 E3 Test sheet : 12.02.88 Compl. date: : 12.02.88 Edition

replaces

: ISO 4113 Calibrating oil

: VE 4/12F1000 R226-6 Injection pump

: 0 460 424 039 Type number

Customer-specific information Customer : CUMMINS/GB

: 4 BT 390 IND Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar : 250...253 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm: 0,3 Prestroke

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1,8

mm: +-0,02 (0,06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900 Speed

Setting value mm: 2,4...2,8

Supply-pump pressure:

Speed 1/min: 900

Setting value bar: 4,0...4,6

Full-load del. w/out charge press.:

1/min : 900 Speed

Del.quantity cm3/

1000H.: 67,5...68,5

cm3/: 4,0 Dispersion 1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 350

Deliquantity cm3/

1000H.: 3,0...9,0

cm3/: 5,5 Dispersion

1000H.: (7.0)

Full-load speed regulation:

1/min: 1060 Speed

Deliquantity cm3/

1000H: 50,5...56,5

Start:

Speed 1/min: 100

Del.quantity

cm3/1000H.: 70.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750

TD travel mm: 1,3...2,1

mm: (1,0...2,4)

1/min: 900 2nd speed

TD travel mm:

mm: (1,9...3,3)

1/min: 1000 3rd speed TD travel

mm: 2,7...3,5 mm: (2,4...3,8)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,2...2,8 pressure

2nd speed 1/min: 900

Supply-pump

bar: 4,0...4,6 pressure

1/min: 1000 3rd speed

Supply-pump

pressure bar: 4,4...50

Overflow quantity at overflow valve:
1st speed 1/min: 500 Oveflow : 4183
quantity cm3/10s: (2698)
2nd speed 1/min: 1000
OVERTION : 55158
quantity cm3/10s: (40153)
Delivery-quant. and breakaway char.:
1st speed 1/min: 1060
Del.quantity cm3/: 50,556,5 1000H.: (47,559,5)
2nd speed 1/min: 1200
Del.quantity cm3/: 0,03,0
1000H.: -
3rd speed 1/min: 1140
Deliquantity cm3/: 0,015,0
1000H.: -
4th speed 1/min: 1100
Deliquantity cm3/: 15,055,0 1000H.: -
5th speed 1/min: 1000
Del.quantity cm3/: 65,568,5
1000H.: (64,070,0)
6th speed 1/min: 900
Del.quantity cm3/: -
1000H.: (65,071,0)
7th speed
1000H.: (68,076,0)
8th speed 1/min: 500
Del.quantity cm3/: 70,078,0
1000H: (68,080,0)
Zero delivery (stop):
Mech. shutoff:
Speed 1/min: 1000
Deloquantity cm3/: 03
1000H.: -
Classic algorithm
Electr. shutoff:
Speed 1/min: 350
ELAB volt: -
Del.quantity cm3/: 0,03,0 max. 1000H.: 03
max, 1000H.: U5
Idle delivery:
•
1st speed 1/min: 350
Del.quantity cm3/: 3,09,0
1000H.: (1.011.0) 2nd speed 1/min: 500
Del.quantity cm3/: 0,04,0
1000H,: -
100017,

Automatic starting fuel delivery:

1st speed 1/min: 130

Del.quantity cm3/: ind. 1000H: 90,0

2nd speed 1/min: 240

Del.quantity cm3/: max. 1000H: 90,0

Shutoff electromagnet:

Cut-in min. voltage : 20,0 Rated voltage : 24,0

Mounting and assembly dimensions:

KF mm : 5,0...5,4
MS mm : 1,1...1,5
SVS max. mm : 3,0
XK mm : 18,8...20,8
XL mm : 10,3...13,7

Remarks:

Note inst. in remarks column

: CUM 5,9 S4 Test sheet : 12.02.88 Compl. date: Edition : 12.02.88 replaces : 11.12.86 : ISO 4113 Calibrating oil

: VE 6/12F1000 R225-11 Injection pump

Type number

Customer-specific information

Customer : CDC

: 6BT-5,9 CAS I Engine

TEST BENCH REQUIREMENTS

Calibrating-oil C return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Test inj. tubing : 1 680 750 017

: 6 Outside diameter x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm : 0,3 Prestroke

(from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750

Setting value mm: 3,3...3,7

Supply-pump pressure:

1/min: 750 Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

1/min: 750 Speed

Del.quantity cm3/ 1000H.: 46,5...47,5

cm3/: 4,0 Dispersion 1000H.: (4,5)

Low-idle speed regulation:

1/min: 365 Speed

Deliquantity cm3/

1000H.: 8,0...14,0

cm3/: 5,5 Dispersion 1000H.: (7,0)

Full-load speed regulation:

1/min: 1050 Speed

Del.quantity cm3/

1000H: 30_0...36_0

Start:

1/min: 100 Speed Del.quantity

cm3/1000H.: 40,0 mind i

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

TD travel

mm: 1,1...1,9 mm: (0,8...2,2)

1/min: 750 2nd speed

TD travel mm: 3,3,..3,7

mm: (2,8...4,2)

1/min: 1000 3rd speed

TD travel mm: 5,3...6,1

mm: (5,0...6,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 2,4...3,0 pressure

bar: -

2nd speed 1/min: 750

Supply-pump

bar: 3,5....4,1 pressure

bar: -

1/min: 1000

3rd speed

Supply-pump

bar: 4,6...5,2 pressure

bar: -

Overflow quantity at overflow valve:

J17

1st speed 1/min: 500 : 41...83 Oveflow quantity cm3/10s: (26...98) 2nd speed 1/min: 1000 Overflow : 55...138 quantity cm3/10s: (40....153 Delivery-quant. and breakaway char.: 1st speed 1/min: 1050 Del.quantity cm3/: 30,0...36,0 1000H.: (27,0...39,0) 1/min: 1150 2nd speed Del.quantity cm3/: 0,0...3,0 1000H.: -3rd speed 1/min: 1100 Del.quantity cm3/: 0,0...15,0 1000H.: -KF 1/min: 1060 4th speed Del.quantity cm3/: 15,0...45,0 1000H.: -5th speed 1/min: 1000 Del.quantity cm3/: 44.5...47.5 1000H.: (43.0...49.0) 1/min: 900 6th speed Del.quantity cm3/: 46.5...49.5 1000H.: (44.5...51.5) 7th speed 1/min: 750 Del.quantity cm3/: 1000H.: (44,0...50,0)
Sth speed 1/min: 500
Del.quantity cm3/: 33,0...41,0 1000H: (31,0...43,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1000 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 365 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: -Idle delivery: 1/min: 365 1st speed Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,0...4,0 1000H.: -

1st speed 1/min: 200
Del.quantity cm3/: -45,0
1000H:
2nd speed 1/min: 370

2nd speed 1/min: 370 Del.quantity cm3/: max, 1000H: 50,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

KF mm : 5,1...5,3 MS mm : 1,1...1,3 SVS max. mm : 1,2 XK mm : 18,8...20,8 XL mm : 9,1...12,5

Remarks:

J18

Automatic starting fuel delivery:

Note inst. in remarks column

: IHC 5.8 T1 Test sheet Compl. date: : 01.04.86 Edition : 06.05.88 replaces : 01.04.86 : ISO 4113 Calibrating oil

: VE 6/12F1350 R64-1 Injection pump

: 0 460 426 083 Type number

Customer-specific information

: IHC Customer

: D 358/PC 11 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,20

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1150 Setting value mm: 5,2...5,6

Supply-pump pressure:

1/min: 1150 Speed Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

1/min : 1150 Speed

Del.quantity cm3/

1000H.: 84,0...85,0

Dispersion cm3/: 3,5

1000H.: (4.5)

Low-idle speed regulation:

1/min: 500 Speed

Del.quantity cm3/ 1000H.: 14,5...20,5 Dispersion cm3/: 3,5

1000H.: (4.5)

Full-load speed regulation:

1/min: 1430

Del.quantity cm3/

1000H: 44,0...50,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 100 mind `

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600

mm: 1,6...2,4 TD travel

mm: (1,3...2,7) 1/min: 1150

2nd speed

TD travel mm: ·

mm: (4,7...6,1)

1/min: 1300 3rd speed

TD travel

mm: 5.3...6.1 mm: (5.0...6.4)

Supply-pump pressure characteristic:

1st speed 1/min: 400

Supply-pump

bar: 2,7...3,3 pressure

bar:

1/min: 1300 2nd speed

Supply-pump

pressure bar: 6,0...6,6

bar: -

Overflow quantity at overflow valve:

1/min: 500 1st speed

: 55...138 Oveflow quantity cm3/10s: (40...153)

2nd speed 1/min: 1350

Over flow : 55...138

quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

,	Designation	
1st speed 1/min: 1540 Del.quantity cm3/: 0,02,0 1000H.: - 2nd speed 1/min: 1480 Del.quantity cm3/: 9,017,0 1000H.: (8,018,0) 3rd speed 1/min: 1430 Del.quantity cm3/: - 1000H.: (42,052,0) 4th speed 1/min: 1300 Del.quantity cm3/: 80,083,0	Designation K KF MS SVS max. XK XL Remarks:	mm : 3,23,4 mm : 5,75,9 mm : 1,01,2 mm : 6,0 mm : 20,222,2 mm : 15,819,8
1000H.: (78,584,5) Sth speed 1/min: 1150 Del.quantity cm3/: - 1000H.: (81,587,5) 6th speed 1/min: 800 Del.quantity cm3/: 77,081,0 1000H.: (76,082,0) 7th speed 1/min: 500 Del.quantity cm3/: 65,070,0 1000H.: (63,771,3)		
Zero delivery (stop):		
Mech. shutoff:		
Del.quantity cm3/: 1150 1000H.: -		
Idle delivery:		
1st speed 1/min: 500 Del.quantity cm3/: -		
Automatic starting fuel delivery:		
1st speed 1/min: 250 Del.quantity cm3/: -		
2nd speed 1/min: 350 Del.quantity cm3/: - max. 1000H: 80,0		
Shutoff electromagnet:		
Cut-in min. voltage : - Rated voltage : -		
Mounting and assembly dimensions:		

Note inst. in remarks column

: PER 6,0 C Test sheet Edition : 29.07.87

replaces

Calibrating oil : ISO 4113

: VE 6/12F1300 R240 Injection pump

: 0 460 426 084 Type number

Customer-specific information Customer : PERKINS

Engine : T6 60 CC TRU

TEST BENCH REQUIREMENTS

Calibrating-oil oC return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0.25

(from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1200 Speed Charge press. hPa: 1000 Setting value mm: 1,8...2,2

Supply-pump pressure:

1/min: 1200 Speed Charge press. hPa: 1000 Setting value bar: 6,9...7,5 Full-load del. with charge press.:

1/min: 700 Speed Charge press. hPa: 1000

Deliquantity cm3/

1900H.: 99,0...100,0

cm3/:5.0Dispersion 1000H : (5.0)

Full-load del. w/out charge press.:

1/min : 700 Speed

Del.quantity cm3/

1000H.: 87,0...88,0

Low-idle speed regulation:

1/min: 300 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 16,5...20,5

cm3/: 5.0 Dispersion 1000H.: (5,0)

Full-load speed regulation:

1/min: 1450 Charge press. hPa: 1000

Del.quantity cm3/

1000H: 47,0...53,0

Start:

Speed 1/min: 100 Charge press. hPa: -Del. quantity mind cm3/1000H.: 120.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000 Charge press. hPa: 1000

TD travel mm: 0,3...1,1 mm: (0.0...1.4)

1/min: 1200 2nd speed Charge press. hPa: 1000 TD travel

mm: mm: (1,3...2,7)

1/min: 1300 3rd speed Charge press. hPa: 1000 mm: 2,0,..2,8 TD travel

mm: (1,7...3,1)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Charge press. hPa: 1000 ! Supply-pump ! pressure bar: 3,94,5 ! Znd speed 1/min: 1200 !	Charge press. hPa: - Del.quantity cm3/: 80,083,0 1000H: (78,584,5)
Change press. hPa: 1000	Zero delivery (stop):
Supply-pump pressure bar: 6,97,5 3rd speed 1/min: 1300	Mech. shutoff:
Charge press. hPa: 1000 Supply-pump pressure bar: 7,37,9	Speed 1/min: 1300 Del.quantity cm3/: 03 1000H.: -
Overflow quantity at overflow valve:	Electr. shutoff:
1st speed 1/min: 500 Charge press. hPa: - Oveflow: 4183 quantity cm3/10s: (2698) 2nd speed 1/min: 1300	Speed 1/min: 300 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
Charge press. hPa: 1000 Overflow : 55138	Idle delivery:
quantity cm3/10s; (40153)	1st speed
Delivery-quant. and breakaway char.: I 1st speed 1/min: 700 I	1000H.: (13,523,5) 2nd speed
Charge-air pressure-setting	1000H.: (2,512,5) 3rd speed 1/min: 400
LDA stroke mm: 6,3	Deloquantity cm3/: 0,02,6
Del.quantity cm3/: 95.096.0 1000H.: (92.598.5) 2nd speed 1/min: 1550	Automatic starting fuel delivery:
Charge press. hPa: 1000 Del.quantity cm3/: 0,07,0 1 1000H.: -	1st speed 1/min: 150 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 95,0
3rd speed 1/min: 1500 Charge press. hPa: 1000	ind. 1000H: 95,0
Delaquantity cm3/: 13,521,5 1000H.: (10,524,5)	2nd speed 1/min: 230 Charge press. hPa: -
4th speed 1/min: 1450 Charge press. hPa: 1000 Del.quantity cm3/: -	Del.quantity cm3/: - max. 1000H : 85,0
1000H.: 44,056,0 5th speed 1/min: 1300	Shutoff electromagnet:
Charge press. hPa: 1000 Del.quantity cm3/: 95,598,0	Cut-in min. voltage : 20,0
1000H.: (93,599,5)	Rated voltage : 24,0
6th speed 1/min: 1000 Charge press. hPa: 1000	Mounting and assembly dimensions:
Del.quantity cm3/: 99.5102.5 1000H.: (98.0104.0)	Designation
7th speed 1/min: 700 Charge press. hPa: 1000 Del.quantity cm3/: -	K mm : - KF mm : K-OT MS mm : 0,61,0
1000H.: (96,5102,5) 8th speed 1/min: 700 Charge press. hPa: -	SVS max. mm : - XK mm : 17.019.0 XL mm : 12.816.2
Del.quantity cm3/: - 1 1000H: (84,590,5)	Remarks:
9th speed 1/min: 500 1	:

Correction at adjusting nut (46) J23

Note inst. in remarks column

Test sheet : PER 6,0 A Compl. date: : 29.07.87 : 18.04.88 Edition : 12.12.86 replaces Calibrating oil : ISO 4113

Injection pump : VE 6/12F1300 R241

: 0 460 426 085 Type number

Customer-specific information Customer : PERKINS

: T6 60 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil C return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm: 0,3 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1100 Speed Charge press. hPa: 1000 Setting value mm: 2,1...2,5

Supply-pump pressure:

1/min: 1100 Speed Change press. hPa: 1000 Setting value bar: 7,2...7,8 Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Deliquantity cm3/

1000H.: 92,5...93,5 cm3/: 3,5 1000H: (3,5) Dispersion

Full-load del. w/out charge press.:

Speed 1/min: 700

Deliquantity cm3/

1000H.: 81,5...84,5

Low-idle speed regulation:

1/min: 350 Speed Charge press. hPa: -Deliquantity cm3/

1000H.: 13,0...17,0

cm3/: 3,5 Dispersion 1000H.: (3,5)

Full-load speed regulation:

1/min: 1400 Speed Charge press. hPa: 1000 Deliquantity cm3/

1000H: 52,0...58,0

Start:

Speed 1/min: 100 cm3/1000H.: 90.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 950 1st speed Charge press. hPa: 1000

mm: 0,5...1 TD travel mm: (0,1,...,5)

1/min: 1100 2nd speed Charge press. hPa: 1000

TD travel mm: -

mm: (1,6...3,0) 1/min: 1300

3rd speed Charge press. hPa: 1000

TD travel mm: 2,9...3,7

mm: (2,6...4,0)

Supply-pump pressure characteristic:

1st speed 1/min: 700 Charge press. hPa: 1000

Supply-pump bar: 5.5...6,1 1/min: 1100 pressure Mech. shutoff: 2nd speed Charge press. hPa: 1000 1/min: 1300 Speed Supply-pump Deliquantity cm3/: 0..3 bar: 7,2...7,8 1/min: 1300 1000H.: pressure 3nd speed Charge press. hPa: 1000 Electr. shutoff: Supply-pump bar: 8,0...8,6 1/min: 350 Speed pressure ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Overflow quantity at overflow valve: 1/min: 500 1st speed Charge press. hPa: 1000 Idle delivery: : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 1300 1/min: 350 1st speed Del.quantity cm3/: 13.0..17.0 1000H.: (10.0..20.0) Charge press. hPa: 1000 Overflow : 55... 1/min: 400 2nd speed Del.quantity cm3/: 4.0...10.0 1000H.: (2.0...12.0) quantity cm3/10s: (40...153) 1/min: 450 Delivery-quant. and breakaway char.: 3rd speed Del.quantity cm3/: 0,0...2,6 1000H.: (0,0...2,6) 1/min: 700 1st speed Charge-air pressure-setting point hPa: 350 Automatic starting fuel delivery: LDA stroke mm: 6.1

Del.quantity cm3/: 87.5...88.5

1000H.: (85.0...91.0)

2nd speed 1/min: 1530

Charge press. hPa: 1000

Del.quantity cm3/: -1st speed 1/min: 150 Charge press. hPa: -Del quantity cm3/: -1000H: 100,0 Del.quantity cm3/: -1000H.: 0,0...3,0 2nd speed 1/min: 250 1/min: 1480 3rd speed Charge press. hPa: -Charge press. hPa: 1000
Del.quantity cm3/: 8,0...16,0
1000h.: (5,0...19,0)
4th speed 1/min: 1400
Charge press. hPa: 1000
Del.quantity cm3/: 52,0...58,0
1000H.: (49,0...61,0) Del.quantity cm3/: - max. 1000H: 70,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage 1/min: 1300 : 12,0 5th speed Rated voltage Charge press. hPa: 1000 Del.quantity cm3/: 83.0...86.0 1000H.: (81.5...87.5) 6th speed 1/min: 700 Mounting and assembly dimensions: Designation Charge press. hPa: 1000
Del.quantity cm3/: 91.0...94.0
1000H.: (89.5...95.5)
7th speed 1/min: 700 K mm : -KF mm : K-OT MS mm : 1,1..1,35 SVS max. mm : 6.0Charge press. hPa: Del.quantity cm3/: 81.5...84.5
100CH.: (80,0...86,0) XK mm : 20,0...22,0 9, mm : 10,5...13 1/min: 500 8th speed Remarks: Charge press. hPa: Del.quantity cm3/: 73.5...76.5
1000H: (72,0...78,0) Correction at adjusting nut (46)

J25

Zero delivery (stop):

Note inst. in remarks column

Test sheet : PER 6,0 A 1 : 08.09.86 Compl. date: Edition : 22.04.88

replaces

Calibrating oil : ISO 4113

: VE 6/12F1300 R241-1 Injection pump

: 0 460 426 088 Type number

Customer-specific information Customer : PERKINS

: T6 60 DERATE Engine

TEST BENCH REQUIREMENTS

Calibrating-oil OC return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

pressure bar: 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

mm : 0,3 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1100 Charge press. hPa: 1000 Setting value mm: 2,1...2,5

Supply-pump pressure:

Speed 1/min: 1100 Charge press, hPa: 1000 Setting value bar: 7,2...7,8 Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 83.0...84.0 Dispersion cm3/: 3.5 1000H: (3.5)

Full-load del. w/out charge press.:

Speed 1/min : 700

Del.quantity cm3/

1000H.: 76,0...77,0

Low-idle speed regulation:

Speed 1/min: 350 Charge press. hPa: -

Del.quantity cm3/ 1000H.: 13.0...17.0 Dispersion cm3/: 3.5 1000H.: (3,5)

Full-load speed regulation:

1/min: 1400 Speed Charge press. hPa: 1000

Deliquantity cm3/

1000H: 52,0...58,0

Start:

Speed 1/min: 100 cm3/1000H.: 88,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950 Charge press. hPa: 1000

TD travel mm: 0,5...1,1 mm: (0,1...1,5)

1/min: 1100 2nd speed Charge press. hPa: 1000

TD travel mm:

mm: (1,6...3,0)

1/min: 1300 3rd speed Charge press. hPa: 1000 TD travel mm: 3,0...3,6

mm: (2,6...4,0)

Supply-pump pressure characteristic:

1/min: 500 1st speed Charge press. hPa: 1000

Supply-pump!	
pressure bar: 4,75,3	Mech. shutoff:
2nd speed 1/min: 1100	
Charge press. hPa: 1000	Speed 1/min: 1300
Supply-pump !	Del.quantity cm3/: 03
pressure bar: 7.27.8	1000H.: -
3rd speed 1/min: 1300	
Charge press. hPa: 1000	Electr. shutoff:
Supply-pump	
pressure bar: 8,08,6	Speed 1/min: 350
p. 60000	ELAB volt: -
Overflow quantity at overflow valve:	Del.quantity cm3/: 0,03,0
1	max. 1000H.: -
1st speed 1/min: 500	
Charge press. hPa: -	Idle delivery:
Oveflow : 4183	tate activery.
quantity cm3/10s: (2698)	1st speed 1/min: 350
2nd speed 1/min: 1300	hal grantity on 7/1 17 0 17 0
	Del.quantity cm3/: 13,017,0
Charge press, hPa: 1000	1000H.: (10,020,0)
Over¥low : 55138	2nd speed 1/min: 400
quantity cm3/10s: (40153)	Del.quantity cm3/: 4,010,0
Bally and a second of the entropy of the second	1000H.: (2,012,0)
Delivery-quant. and breakaway char.:	3rd speed 1/min: 450
1	Del.quantity cm3/: 0,02,6
1st speed 1/min: 700	1000H.: (0,02,6)
Charge-air pressure-setting	
point hPa: 250 l	Automatic starting fuel delivery:
LDA stroke mm: 4.0	
Del.quantity cm3/: 80,581,5	1st speed 1/min: 150
Del.quantity cm3/: 80,581,5 1000H.: (78,084,0)	Charge press. hPa: -
Zna speed 1/min: 1530	Del.quantity cm3/: -
Charge press. hPa: 1000	ind. 1000H: 100 ₋ 0
Del.quantity cm3/: -	
1000H.: 0,03,0	2nd speed 1/min: 250
3rd speed 1/min: 1480 i	Charge press. hPa: -
Charge press. hPa: 1000	Deliquantity cm3/: -
Del.quantity cm3/: 12,020,0	max. 1000H : 70,0
1000h.: (9,023,0)	
4th speed 1/min: 1400	Shutoff electromagnet:
Charge press. hPa: 1000	•
Del.quantity cm3/: 52,058,0	Cut-in
1000H.: (49,061,0)	min. voltage : 10,0
5th speed 1/min: 1300	Rated voltage : 12,0
Charge press. hPa: 1000	3
Del.quantity cm3/: 74,077,0	Mounting and assembly dimensions:
1000H.: (72,578,5)	,
6th speed 1/min: 700	Designation
Charge press. hPa: 1000	K mm : -
Del.quantity cm3/: 82,085,0	KF mm : K-OT
1000H.: (80,586,5)	MS mm : 1,01,4
7th speed 1/min: 700	SVS max. mm : 6,0
	XK mm : 20,022,0
Charge press. hPa: - ! Del.quantity cm3/: 76,077,0 !	XL mm : 10,413,8
	/L IIIII , (U) 71 + (U) U
	Remarks:
	nenero.
Charge press. hPa: -	•
Del.quantity cm3/: 68.571.5	Correction at adjusting but 1/6)
1000H: (67,073,0)	Correction at adjusting nut (46)

Zero delivery (stop):

Note inst. in remarks column

Test sheet : PER 6,0 C2 Edition : 19.04.88

replaces

Calibrating oil : ISO 4113

: VE 6/12F1300 R240-2 Injection pump

: 0 460 426 094 Type number

Customer-specific information Customer : PERKINS

Engine : T6 60 CC TRU

TEST BENCH REQUIREMENTS

Calibrating-oil C return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm: 0.25 Prestroke

(from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1200 Charge press, hPa: 1000 Setting value mm: 1,8...2,2

Supply-pump pressure:

1/min: 1200 Speed Charge press. hPa: 1000 Setting value bar: 6,9...7,5 Full-load del. with charge press .:

1/min: 700 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 99,0...100,0

cm3/:5,0Dispersion 1000H : (5,0)

Full-load del. w/out charge press.:

1/min : 700 Speed

Del.quantity cm3/

1000H.: 87_0...88_0

Low-idle speed regulation:

Speed 1/min: 300 Charge press. hPa: -

Del.quantity cm3/ 1000H.: 16,5...20,5 Dispersion cm3/: 5,0 1000H.: (5,0)

Full-load speed regulation:

1/min: 1450 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 47,0...53,0

Start:

Speed 1/min: 100 Charge press. hPa: -Del.quantity mind cm3/1000H.: 120.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press. hPa: 1000

mm: 0.3...1.1 mm: (0.0...1.4) TD travel

1/min: 1200 2nd speed Charge press. hPa: 1000 TD travel mm: -

mm: (1,3...2,7)

3rd speed 1/min: 1300 Charge press. hPa: 1000 TD travel

mm: 2,0...2,8 mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Charge press. hPa: 1000 Charge press. hPa: -Del.quantity cm3/: 80,0...83,0 Supply-pump bar: 3,9...4,5 1/min: 1200 1000H: (78,5...84,5) pressure 2nd speed Charge press. hPa: 1000 Zero delivery (stop): Supply-pump bar: 6,9...7,5 Mech. shutoff: pressure 1/min: 1300 3rd speed Charge press. hPa: 1000 1/min: 1300 Speed Del.quantity cm3/: 0..3 1000H.: -Supply-pump bar: 7,3...7,9 pressure Overflow quantity at overflow valve: Idle delivery: 1st speed 1/min: 500 1st speed 1/min: 300 Del.quantity cm3/: -1000H.: (13,5..23,5) Change press. hPa: -Oveflow : 41...83 quantity cm3/10s: (26...98) 1/min: 350 2nd speed Del.quantity cm3/: 4,5...10,5 1000H.: (2,5...12,5) 1/min: 1300 2nd speed Charge press. hPa: 1000 Overflow : 55... : 55...138 3rd speed 1/min: 400 quantity cm3/10s: (40...153) Del.quantity cm3/: 0,0...2,6 Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1/min: 700 1/min: 150 1st speed 1st speed Charge press. hPa: -Charge-air pressure-setting point hPa: 450 Del.quantity cm3/: -LDA stroke mm: 6.3 Del.quantity cm3/: 95.0...96.0 1000H.: (92.5...98.5) ind. 1000H: 95,0 2nd speed 1/min: 230 1/min: 1550 2nd speed Charge press. hPa: -Charge press. hPa: 1000 Del.quantity cm3/: 0,0...7,0 1000H.: -Del.quantity cm3/: -max. 1000H: 85.0 1/min: 1500 Mounting and assembly dimensions: 3rd speed Charge press. hPa: 1000 Del.quantity cm3/: 13.5...21.5 1000H.: (10.5...24.5) Designation K mm KF : K-0T 1/min: 1450 4th speed mm Charge press. hPa: 1000 Del.quantity cm3/: -MS TYD 0 م 1 م 1 م 6 م 0 : SVS max. mm : -1000H.: 44,0...56,0 mm : 17,0...19,0 XΚ 1/min: 1300 XL 2ر16...8ء mm 5th speed Charge press. hPa: 1000 Del.quantity cm3/: 95,5...98.0 1000H.: (93,5...99,5) Remarks: 1/min: 1000 oth speed Charge press. hPa: 1000
Del.quantity cm3/: 99.5...102.5
1000H.: (98.0...104.0)
7th speed 1/min: 700 Correction at adjusting nut (46) Charge press, hPa: 1000 Del.quantity cm3/: -1000H.: (96,5...102,5) 1/min: 700 8th speed Charge press. hPa: -Deliquantity cm3/: -1000H: (84,5...90,5) 1/min: 500 9th speed K03

Note inst. in remarks column

: PER 6,0 A2 Test sheet : 12.01.88 Compl. date: Edition : 19.04.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1300 R241-2

: 0 460 426 095 Type number

Customer-specific information Customer : PERKINS

: T6 60 TRUCK Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm: 0.3 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values lest specifications in parentheses

Timing-device travel:

1/min: 1100 Charge press. hPa: 1000 Setting value mm: 2,1...2,5

Supply-pump pressure:

1/min: 1100 Speed Charge press. hPa: 1000 Setting value bar: 7,2...7,8

K04

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 92,5...93,5 Dispersion cm3/: 3,5 1000H: (3,5)

Full-load del. w/out charge press.:

1/min : 700 Speed

Del.quantity cm3/ 1000H.: 81,5...84,5

Low-idle speed regulation:

Speed 1/min: 350 Charge press. hPa: -

Del.quantity cm3/ 1000H.: 13,0...17,0 Dispersion cm3/: 3,5 1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1400 Charge press. hPa: 1000

Deliquantity cm3/

1000H: 52,0...58,0

Start:

Speed 1/min: 100 Charge press. hPa: cm3/1000H.: 90.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950

Charge press. hPa: 1000

mm: 0,5...1,1 TD travel mm: (0,1,...,5)

1/min: 1100 2nd speed Charge press. hPa: 1000

TD travel mm: -

nm: (1,6...3,0)

1/min: 1300 3rd speed Charge press. hPa: 1000

mm: 2,9...3,7 TD travel mm: (2,6...4,0)

Supply-pump pressure characteristic:

1st speed 1/min: 700

Charge press. hPa: -Charge press. hPa: 1000 Del.quantity cm3/: 73,5...76,5 Supply-pump bar: 5,5...6,1 1/min: 1100 1000H: (72,0...78,0) pressure 2nd speed Charge press. hPa: 1000 Zero delivery (stop): Supply-pump bar: 7,2...7,8 1/min: 1300 Mech. shutoff: pressure 3rd speed Charge press. hPa: 1000 1/min: 1300 Speed Del.quantity cm3/: 0..3 Supply-pump 1000H.: pressure bar: 8,0...8,6 Overflow quantity at overflow valve: Idle delivery: 1/min: 350 1st speed 1/min: 500 1st speed Del.quantity cm3/: 13,0..17,0 Charge press. hPa: 1000 Oveflow : 41...83 1000H.: (10,0..20,0) quantity cm3/10s: (26...98) 2nd speed 1/min: 400 Del.quantity cm3/: 4,0...10,0 1000H.: (2,0...12,0) 1/min: 1300 2nd speed Charge press. hPa: 1000 1/min: 450 Overflow : 55...138 3rd speed Del.quantity cm3/: 0,0...2,6 1000H.: quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: Automatic starting fuel delivery: 1st speed 1/min: 700 Charge-air pressure-setting 1st speed 1/min: 150 point hPa: 350 Charge press. hPa: -LDA stroke mm: 6,1
Del.quantity cm3/: 87,5...88,5
1000H.: (85,0...91,0)
2nd speed 1/min: 1530 Deliquantity cm3/: -1000H: 100,0 ind. 1/min: 250 2nd speed Charge press. hPa: 1000 Charge press. hPa: -Del.quantity cm3/: 0,0...3,0 1000H.: -Del.quantity cm3/: - max. 1000H: 70,0 3rd speed 1/min: 1480 Charge press. hPa: 1000 Mounting and assembly dimensions: Del.quantity cm3/: 8.0...16.0 1000H.: (5.0...19.0) 4th speed 1/min: 1400 Designation mm **KF** Charge press. hPa: 1000 : K-0T mm Deliquantity cm3/: -MS mm 35م 1 . . 1 م 1 : 1000H.: (49,0...61,0) SVS max. mm : 6,0 1/min: 1300 20,0...22,0 5th speed XK men Charge press. hPa: 1000 XL 9ر13...5، 10 MM Deliquantity cm3/: 83,0...86,0 1000H.: (81,5...87,5) Remarks: 1/min: 1000 6th speed Charge press. hPa: 1000 Deliquentity cm3/: Correction at adjusting nut (46) 1000H.: (90,0...96,0) 1/min: 700 7th speed Charge press, hPa: 1000 Deliquantity cm3/: 91,0...94,0 1000H.: (89,5...95,5) 1/min: 700 8th speed hPa: -Charge press. Del.quantity cm3/: 81,5...84,5 1000H: (80,0...86,0) 9th speed 1/min: 500

Note inst. in remarks column

: PER 6,0 A3 Test sheet Compl. date: : 12.01.88 Edition : 19.04.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1300 R241-3

: 0 460 426 096 Type number

Customer-specific information Customer : PERKINS

: T6.60 DERATE BEDFORD Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Test inj. tubing : 1 688 750 017

Outside diameter : ó x Wall thickness mm: 840 x Length

Start of delivery

mm: 0,3 Prestroke

(from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1100 Speed Charge press. hPa: 1000 Setting value mm: 2,1...2,5

Supply-pump pressure:

1/min: 1100 Speed Charge press, hPa; 1000 Setting value bar: 7,2...7,8

K06

Full-load del. with charge press.:

1/min: 1000 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 83_0...84_0

cm3/: 3.5Dispersion 1000H : (3,5)

Full-load del. w/out charge press.:

1/min: 700 Speed

Del.quantity cm3/

1000H.: 76,0...77,0

Low-idle speed regulation:

1/min: 350 Speed Charge press. hPa: -

Dispersion cm3/: 3,5 1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1400 Charge press. hPa: 1000

Deliquantity cm3/

1000H: 52,0...58,0

Start:

1/min: 100 Charge press. hPa: -Del.quantity mind cm3/1000H.: 88,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950

Charge press. hPa: 1000 mm: 0,5...1 TD travel

mm: (0,1,...,5)

1/min: 1100 2nd speed Charge press. hPa: 1000

TD travel mm:

mm: (1,6...3,0)

1/min: 1300 3rd speed Charge press. hPa: 1000 TD travel mm: 3,0...3,6

mm: (2,6...4,0)

Supply-pump pressure characteristic:

1st speed 1/min: 500	Deliquantity cm3/: 76,077,0
Charge press. hPa: 1000	9th speed 1/min: 500
Supply-pump pressure bar: 4,75,3	
2nd record 1/min 1100	Charge press. hPa: -
2nd speed 1/min: 1100	Del.quantity cm3/: 68,571,5
Charge press. hPa: 1000	0ر7373 : 1000H: (67
Supply-pump	l Zana dalissams (ahaa) e
pressure bar: 7,27,8 3rd speed 1/min: 1300	Zero delivery (stop):
Sharp and box 1000	Mark akidaffi
Charge press. hPa: 1000	Mech. shutoff:
Supply-pump	4.4.14700
pressure bar: 8,08,6	Speed 1/min: 1300
bar: -	Del.quantity cm3/: 03
	1000H.: -
Overflow quantity at overflow valve:	
	Idle delivery:
1st speed 1/min: 500	4
Charge press. hPa: -	1st speed 1/min: 350
Oveflow : 4183	Del.quantity cm3/: -
quantity cm3/10s: (2698)	Del.quantity cm3/: - 1000H.: (10,020,0)
2nd speed 1/min: 1300	2nd speed 1/min: 400
Charge press. hPa: 1000	Del.quantity cm3/: 4,010,0
Overflow : 55138	(0, 10, 2) : . ١٥٥٥١
quantity cm3/10s: (40153)	3rd speed 1/min: 450
· ' · · '	Deliquantity cm3/: 0,02,6
Delivery-quant. and breakaway char.:	1000H.: -
, ' '	
1st speed 1/min: 700	Automatic starting fuel delivery
Charge-air pressure-setting	
point hPa: 250	1st speed 1/min: 150
LDA stroke mm: 4,0	Charge press. hPa: -
Del.quantity cm3/: 80,581,5	Del.guantity cm3/: -
1000H.: (78,084,0)	Del.quantity cm3/: - ind. 1000H: 100.0
2nd speed 1/min: 1530	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Charge press. hPa: 1000	2nd speed 1/min: 250
Del.quantity cm3/: 0,03,0	Charge press. hPa: -
1000H.: -	Del.quantity cm3/: -
3rd speed 1/min: 1480	max. 1000H: 70,0
Charge press. hPa: 1000	10001111030
Del. quantity cm3/: 12,020,0	Mounting and assembly dimensions
1000H.: (9,023,0)	liberating and assembly atmensions
4th speed 1/min: 1400	Designation
	Designation K mm:-
	1 VC 1/ 67
Del.quantity cm3/: - 1000H.: (49_061_0)	
5th speed 1/min: 1300	
Charge press, hPa: 1000	XK mm : 20,022,0
vel.quantity cm3/: 74.077.0	8ر134ر1 : mm
1000H.: (72,578,5)	On asteri
6th speed 1/min: 1000	Remarks:
Charge press, hPa: 1000	Annualian ak = 11
Del.quantity cm3/: -	Correction at adjusting nut (46)
1000H.: (80,586,5)	
7th speed 1/min: 700	
Charge press. hPa: 1000	
Del.quantity cm3/: 82,085,0	
1000H.; (80,5,86,5)	
8th speed 1/min: 700	
Charge prace hPar -	

Note inst. in remarks column

: CUM 5,9 U9 Test sheet : 29.10.87 Compl. date: Edition : 04.11.87

replaces

Calibrating oil : ISO-4113

: VE 6/12F1400 R195-2 Injection pump

: 0 460 426 108 Type number

Customer-specific information

Customer : CDC

: 6 BTA-3,9 I Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 2.4

mm: +-0,02 (0,06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

K08

Charge press. hPa: 1000 Setting value mm: 1,5...1,9

Supply-pump pressure:

1/min: 1100 Charge press. hPa: 1000 Setting value bar: 6,3...6,9

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 82.5...83.5 Dispersion cm3/: 4.0 1000H: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500

Del.quantity cm3/

1000H.: 73,0...74,0

Low-idle speed regulation:

Speed 1/min: 375

Del.quantity cm3/

1000H.: 8,0...14,0

Dispersion cm3/: -

1000H.: 5.5

Full-load speed regulation:

1/min: 1510 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 56,0...62,0

Start:

1/min: 100 Speed Del.quantity : cm3/1000H.: 100 mind

Load-dependent start of delivery:

Speed 1/min: -

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press. hPa: 1000

mm: 0,8...1,6 TD travel mm: (0.5...1,9) 2nd speed 1/min: 1100

Charge press. hPa: 1000	Del.quantity cm3/: 75,78,5
TD travel mm: 1.51.9	1000H.: (74,080,0)
TD travel mm: 1,51,9 ! mm: (1,02,4) !	7th speed 1/min: 1100
3rd speed 1/min: 1400	Charge press. hPa: 1000
Chance mann blas 1000	hal grantity and 1000
Charge press. hPa: 1000	Del.quantity cm3/: 80,083,0
TD travel mm: 2,73,5 mm: (2,43,8)	1000H.: (78,085,0)
mm: (8,3,3,8) ا	8th speed 1/min: 850
	Charge press. hPa: 1000
Supply-pump pressure characteristic:	Del.quantity cm3/: 82,583,5
ompry pump process o one determine to	1000H: (80,086,0)
4.6 4.6 to - 500	10001. \(\frac{100}{100}\)
1st speed 1/min: 500	9th speed 1/min: 700
Charge press. hPa: 1000	Charge press. hPa: 550
Supp Ty-pump	Del.quantity cm3/: 79,580,5
pressure har 3.54.1	1000H: (76,084,0)
pressure bar: 3,54,1 2nd speed 1/min: 1100	10th speed 1/min: 500
Change and how 1000	Change and block 1000
Charge press. hPa: 1000	Charge press. hPa: 1000
Supply-pump !	Del.quantity cm3/: 98,0106,0
pressure bar: 6,36,9	1000H: -
3rd speed 1/min: 1400	11th speed
Charge press. hPa: 1000	Charge press. hPa: -
Charles and	Del supptitu ouz/1 77 0 7/ 0
Supply-pump !	Del.quantity cm3/: 73,074,0
pressure bar: 7,78,3	1000H: (69,577,5)
Overflow quantity at overflow valve:	Zero delivery (stop):
to the quarter by the training that the training the training the training training the training train	action do actionly to taps t
10t 0000d 1/win 500	Mach chutaffi
1st speed 1/min: 500	Mech. shutoff:
Charge press. hPa: -	
Oveflow : 4183	Speed 1/min: 1400
quantity cm3/10s: (2698)	Del.quantity cm3/: 03
2nd speed 1/min: 1400	1000H.: -
	100011,
Charge press. hPa: 1000	
0	Classa shakarra
Overflow : 55138	Electr. shutoff:
Overflow : 55138 quantity cm3/10s: (40153)	
Overflow : 55138	Electr. shutoff: Speed 1/min: 375
Overflow : 55138 quantity cm3/10s: (40153)	Speed 1/min: 375
Overflow : 55138	Speed 1/min: 375 ELAB volt: -
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.:	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700	Speed 1/min: 375 ELAB volt: -
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery:
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery:
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0)	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0)
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450
Overflow: 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char:: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0)
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: -
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600 Charge press. hPa: 1000	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600 Charge press. hPa: 1000 Del.quantity cm3/: 0.015.0	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet:
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600 Charge press. hPa: 1000 Del.quantity cm3/: 0.015.0 1000H.: -	<pre>Speed</pre>
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600 Charge press. hPa: 1000 Del.quantity cm3/: 0.015.0 1000H.: -	<pre>Speed</pre>
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600 Charge press. hPa: 1000 Del.quantity cm3/: 0.015.0 1000H.: - 4th speed 1/min: 1550	<pre>Speed 1/min: 375 ELAB</pre>
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point hPa: 550 LDA stroke mm: 5.0 Del.quantity cm3/: 79.580.5 1000H.: (76.084.0) 2nd speed 1/min: 1650 Charge press. hPa: 1000 Del.quantity cm3/: 0.03.0 1000H.: - 3rd speed 1/min: 1600 Charge press. hPa: 1000 Del.quantity cm3/: 0.015.0 1000H.: - 4th speed 1/min: 1550 Charge press. hPa: 1000	<pre>Speed</pre>
<pre>Overflow</pre>	<pre>Speed</pre>
<pre>Overflow</pre>	<pre>Speed 1/min: 375 ELAB</pre>
<pre>Overflow</pre>	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet: Cut-in min. voltage : 10 Rated voltage : 12 Mounting and assembly dimensions:
<pre>Overflow</pre>	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet: Cut-in min. voltage : 10 Rated voltage : 12 Mounting and assembly dimensions:
<pre>Overflow</pre>	<pre>Speed</pre>
<pre>Overflow</pre>	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet: Cut-in min. voltage : 10 Rated voltage : 12 Mounting and assembly dimensions: Designation K mm : -
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet: Cut-in min. voltage : 10 Rated voltage : 12 Mounting and assembly dimensions: Designation K mm : - KF mm : K-0T
Overflow	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet: Cut-in min. voltage : 10 Rated voltage : 12 Mounting and assembly dimensions: Designation K mm : - KF mm : K-07 MS cm3/: 0.81,2
Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.: 1st speed 1/min: 700 Charge-air pressure-setting point	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,014,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Shutoff electromagnet: Cut-in min. voltage : 10 Rated voltage : 12 Mounting and assembly dimensions: Designation K mm : - KF mm : K-0T

XK mm : 19,7...19,9 XL mm : 14,0...17,4

Remarks:

:

Correction at adjusting nut (46)

Note inst. in remarks column

: VWW 1,6 W3 Test sheet : 09.02.88 Compl. date: Edition : 09.02.88 : 07.07.87 replaces Calibrating oil : ISO4113

: VE 4/ 9F2250 R149 Injection pump

: 0 460 494 138 Type number

Customer-specific information

Customer

Engine : 086T

TEST BENCH REQUIREMENTS

Calibrating-oil oC return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 750 mm: 3,8...4,2 Setting value

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 750 Setting value bar: 4,6...5,2

Full-load del. with charge press.:

1/min: 1500 Speed

K11

Charge press. hPa: 750

Del.quantity cm3/ 1000H.: 43,5...44,5 Dispersion cm3/: 2,5

1000H : (3,0)

Full-load del. w/out charge press.:

1/min : 600 Speed

Del.quantity cm3/

1000H.: 23,5...24,5

Low-idle speed regulation:

Speed 1/min: 475 Charge press. hPa: -Del. quantity cm3/ 1000H.: 6,0...10,0

cm3/: 2,0 Dispersion

1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2525 Charge press. hPa: 750

Deliquantity cm3/

1000H: 10,0...14,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 35,0 mind '

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press. hPa: 750

TD travel mm: 1,8...2,6 mm: (1,5...2,9)

1/min: 1500 2nd speed Charge press. hPa: 750

TD travel mm: mm: (3,3...4,7) 1/min: 2250

3rd speed Charge press. hPa: 750

mm: 6,1...6,9 mm: (5,8...7,2) TD travel

Supply-pump pressure characteristic:

1st speed 1/min: 600 Charge press. hPa: 750

Supply-pump

bar: 2,5...3,1 pressure

2nd speed 1/min: 2250 Charge press. hPa: 750 Supply-pump bar: 6,5...7,1 pressure Overflow quantity at overflow valve: 1st speed 1/min: 600 Charge press. hPa: -Oveflow' quantity cm3/10s: (50...75) 2nd speed 1/min: 2250 Charge press. hPa: 750 Overflow : 82.. : 82...112 quantity cm3/10s: (77...117) Delivery-quant. and breakaway char.: 1st speed 1/min: 1000 Charge-air pressure-setting point hPa: 300 LDA stroke mm: 4,5
Del.quantity cm3/: 33,5...34,5
1000H.: (31,0...37,0)
2nd speed 1/min: 2750 Charge press. hPa: 750 Del.quantity cm3/: 0,0...3,0 1000H.: -1/min: 2525 3rd speed Charge press. hPa: 750 Deliquantity cm3/: -1000H.: (8,0...16,0) 1/min: 2425 4th speed Charge press. hPa: 750
Del.quantity cm3/: 22,0...32,0
1000H.: (21,0...33,0)
5th speed 1/min: 2250 Charge press. hFa: 750
Del.quantity cm3/: 37.5...39.5
1000H.: (36.3...40.7) 1/min: 1500 6th speed Charge press. hPa: 750 Del.quantity cm3/: -1000H.: (41,8...46,2) 1/min: 600 7th speed Charge press. hPa: Del.quantity cm3/: 1000H.: (21,0...27,0) Zero delivery (stop): Electr. shutoff: 1/min: 475 Speed volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery:

1st speed 1/min: 475 Del.quantity cm3/: -1000H.: (4,0...12,0) 2nd speed 1/min: 1200 Del.quantity cm3/: 0,0...6,0 1000H.: -Automatic starting fuel delivery: 1/min: 400 1st speed Charge press. hPa: -Deliquantity cm3/: ind. 1000H: 22,0 1/min: 500 2nd speed Charge press. hPa: -Del.quantity cm3/: - max. 1000H: 30,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage Rated voltage : 12,0 Mounting and assembly dimensions: Designation K 4, 3, 2, . . . 3, 4 KF . 5,6...6,0 MS mm 5ر1،،،1ر1 : SVS max. : 3,8 mm : 18,4...20,4 XK mm 0ر12...6ر8 : XL mm

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet : VWW 1,6 E Compl. date: : 28.10.87 Edition : 22.04.88 : 18.02.88 replaces Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2000 160 Type number : 0 460 494 149

Customer-specific information

Customer : VW

: 068.5-1.6L Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

1/min: 1500 Charge press. hPa: 750 Setting value mm: 3,2...3,6

Supply-pump pressure:

1/min: 1500 Charge press. hPa: 750 Setting value bar: 4,6...5,2

Full-load del. with charge press.:

1/min: 1500 \$peed

K13

Charge press. hPa: 750

Del.quantity cm3/ 1000H.: 43,5...44,5 Dispersion cm3/: 2,5 1000H: (3,0)

Full-load del. w/out charge press.:

1/min : 600 Speed

Deliquantity cm3/

1000H.: 25,...26,5

Low-idle speed regulation:

1/min: 475 Speed

Del.quantity cm3/ 1000H.: 6,0...10,0

cm3/: 2.0 Dispersion

1000H.: (3,0)

Full-load speed regulation:

1/min: 2110 Speed Charge press. hPa: 750

Del.quantity cm3/

1000H: 10,0...14,0

Start:

1/min: 100 Speed

Del.quantity

cm3/1000H.: 35,0 mind '

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press. hPa: 750

TD travel mm: 1,2...2,0

mm: (0,9...2,3)1/min: 1500 2nd speed

Charge press. hPa: 750

TD travel mm: 3,2...3,6mm: (2,7,...4,1)

1/min: 2000 3rd speed

Charge press. hPa: 750

TD travel mm: 5,2...6,0

mm: (4,9...6,3)

Supply-pump pressure characteristic:

1/min: 600 1st speed Charge press. hPa: 750

Supply-pump

pressure bar: 2,5...3,1

bar: -

2nd speed 1/min: 1500

Charge press. hPa: 750 10th speed 1/min: 600 Del.quantity cm3/: 25,5...26,5 Supply-pump 1000H: (23,0...29,0) bar: 4,6...5,2 pressure bar: -1/min: 2000 3rd speed Zero delivery (stop): Charge press. hPa: 750 Supply-pump bar: 5,7...6,3 pressure Electr. shutoff: bar: -1/min: 475 Speed Overflow quantity at overflow valve: ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: -1st speed 1/min: 600 Oveflow : 41...83 quantity cm3/10s: (26...98) Idle delivery: 2nd speed 1/min: 2000 Charge press. hPa: 750 1st speed 1/min: 475 Overflow : 55...138 Del.quantity cm3/: 6,0...10,0 1000H.: (4,0...12,0) quantity cm3/10s: (40...153) 1/min: 600 2nd speed Del.quantity cm3/: 0,0...3,0 1000H.: -Delivery-quant. and breakaway char.: 1/min: 1000 1st speed Automatic starting fuel delivery: Charge-air pressure-setting hPa: 300 point LDA stroke mm: 4,5
Del.quantity cm3/: 34,5...35,5
1000H.: (32,0...38,0) 1st speed 1/min: 350 Del.quantity cm3/: 1000H: 33,0 ind. 1/min: 2110 2nd speed Charge press. hPa: 750 1/min: 450 2nd speed Del.quantity cm3/: 10,0...14,0 1000H.: -Del.quantity cm3/: - max. 1000H: 39,0 3rd speed 1/min: 2150 Charge press. hPa: 750 Shutoff electromagnet: Del.quantity cm3/: 0,0...6,0 1000H.: -Cut-in 1/min: 2130 4th speed min. voltage : 10,0 Charge press. hfa: 750 Rated voltage : 12,0 Del.quantity cm3/: -1000H.: (0,0...12,0)

5th speed 1/min: 2100

Charge press. hPa: 750

Del.quantity cm3/: 5,0...29,0

1000H.: -Mounting and assembly dimensions: Designation mm : 3,2...3,4KF mm : 5,6...6,01/min: 2060 MS mm : 1,1...1,5 6th speed Charge press. hPa: 750 mm: 4,6 mm: 17,0...19,0 SVS max. Del.quantity cm3/: 29,0...53,0 1000H.: -XK mm: 14,0...17,4 XL 1/min: 2000 7th speed Charge press. hPa: 750 Remarks: Del.quantity cm3/: 39.5...40.5 1000H.: (38.3...42.7) 8th speed 1/min: 1500 Correction at adjusting nut (46) Charge press. hPa: 750 Del.quantity cm3/: 43,5...44,5 1000H: (41,8...46,2) 1/min: 600 9th speed Charge press. hPa: 750 Deliquantity cm3/: 32,0...35,0 1000H: (30,5...36,5)

Note inst. in remarks column

: VWW 1,6 W18 Test sheet : 04.02.87 Compl. date: : 18.02.88 Edition : 10.12.86 replaces : ISO 4113 Calibrating oil

: VE 4/ 9F2250 R170 Injection pump : 0 460 494 152 Type number

Customer-specific information

Customer

: 162T-1,6 TU Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar : 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness mm: 840 x Length

Start of delivery

mm: 0,2 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values fest specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 750 Setting value mm: 3,8...4,2

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 750 Setting value bar: 4,8...5,4 Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 750

Del.quantity cm3/ 1000H.: 42.5...43.5 Dispersion cm3/: 2.5 1000H : (3,0)

Full-load del. w/out charge press.:

1/min : 600 Speed

Del.quantity cm3/

1000H.: 25,0...26,0

Low-idle speed regulation:

1/min: 415 Speed Charge press. hPa: 750 Del.quantity cm3/ 1000H.: 6,0...10,0

cm3/: 2,0 Dispersion 1000H.: (3,0)

Full-load speed regulation:

1/min: 2525 Speed Charge press. hPa: 750

Del.quantity cm3/

1000H: 13,0...19,0

Start:

Speed 1/min: 100 Charge press. hPa: 750 Del.quantity mind cm3/1000H.: 35,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 900 1st speed

Charge press. hPa: 750 TD travel mm: 1,6...2,4 mm: (1,2...2,8)

1/min: 1500 2nd speed Charge press. hPa: 750 TD travel mm: 3.8.

mm: 3,8...4,2

mm: (3,2...4,8)
3rd speed 1/min: 2250
Charge press. hPa: 750 TD travel mm: 6,4...7,2

mm: (6,0...7,6)

Supply-pump pressure characteristic:

1/min: 600 0,0...26 Del.quantity cm3/: 25,0...26 1st speed Charge press. hPa: 750 1000H: (22,0...28,0) Supply-pump bar: 2,7...3,3 bar: (2,5...3,5) 1/min: 1500 pressure Zero delivery (stop): 2nd speed Charge press. hPa: 750 Electr. shutoff: Supp (y-pump bar: 4,8...5,4 bar: (4,6...5,6) 1/min: 2250 1/min: 415 pressure Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -3rd speed Charge press. hPa: 750 Supply-pump bar: 6,7...7,3 bar: (6,5...7,5) Idle delivery: pressure 1/min: 415 1st speed Del.quantity cm3/: 6,0...10,0 1000H.: (4,0...12,0) Overflow quantity at overflow valve: 1/min: 600 1/min: 1000 1st speed 2nd speed Del.quantity cm3/: 0.0...3.0 1000H.: -Charge press. hPa: 750 Oveflow : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 2250 Automátic starting fuel delivery: Charge press. hPa: 750 Overflow : 55...138 1/min: 400 1st speed Charge press. hPa: 750 quantity cm3/10s: (40...153) Deliquantity cm3/: -ind. 1000H: 29,5 Delivery-quant. and breakaway char.: 1/min: 900 1/min: 500 1st speed 2nd speed Charge press. hPa: 750 Charge-air pressure-setting Del.quantity cm3/: - max. 1000H: 37,5 point hPa: 300 Del.quantity cm3/: 36.0...37.0 1000H.: (33.0...39.0) 2nd speed 1/min: 2525 Charge press. hPa: 750 Shutoff electromagnet: Del.quantity cm3/: 13.0...19.0 1000H.: (12.0...20.0) 3rd speed 1/min: 2650 Charge press. hPa: 750 Cut-in : 10,0 min. voltage : 12,0 Rated voltage Del.quantity cm3/: 0,0...6,0 1000H.: -Mounting and assembly dimensions: KF 4th speed 1/min: 2450 nm : 5,6...6,0Charge press, hPa: 750
Del.quantity cm3/: 22,0...32,0
1000H.: (21,0...33,0)
Sth speed 1/min: 2250
Charge press, hPa: 750
Del.quantity cm3/: 35,0...37,0
1000H.: (33,8...38,2) mm : 1,1...1,5 MS mm : 3.0 mm : 17.0...19.0 mm : 8.4...11.8 SVS max. ХK XL Remarks: 1/min: 1500 6th speed Charge press. hPa: 750 Del.quantity cm3/: -1000H.: (40,8...45,2) 7th speed 1/min: 600 Charge press. hPa: 750 Del.quantity cm3/: 35,5...38,5 1000H.: (34,0...40,0) 1/min: 600 8th speed Change press. hPa: -

Note inst. in remarks column

: VWW 1,6 W16 Test sheet : 12.02.88 Compl. date:

: 12.02.88 Edition replaces : 12.85 Calibrating oil : ISO 4113

: VE 4/ 9F2250 R223 Injection pump

: 0 460 494 182 Type number

Customer-specific information

Customer : VW

: 086T-1.6L Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press. bar : 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250 Charge press. hPa: 750

Setting value mm: 2,9...3

Supply-pump pressure:

1/min: 1250 Charge press. hPa: 750 Setting value bar: 4,2...4,8

Full-load del, with charge press.:

Speed 1/min: 1500

K17

Charge press. hPa: 750

Del.quantity cm3/ 1000H.: 43,5...44,5 Dispersion cm3/: 2,5 1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600

Del.quantity cm3/

1000H.: 23,5...24,5

Low-idle speed regulation:

Speed 1/min: 375

Del.quantity cm3/ 1000H.: 11,0...13,0

Residual-Delivery Setting 1/min: 800

Del.quantity cm3/

1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2525 Charge press. hPa: 750

Del.quantity cm3/

1000H: 13,0...19.0

Start:

1/min: 100 Speed

Del.quantity

mind ' cm3/1000H.: 35,0

Load-dependent start of delivery:

1/min: 1250 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed

Charge press. hPa: 750 mm: 1,8...2,6 TD travel

mm: (1,5...2,9)
1/min: 1250

2nd speed Charge press. hPa: 750

TD travel mm: 2,9...3,3 mm: (2,4...3,8)

1/min: 1800 3rd speed

Charge press, hPa: 750 TD travel 7ر5...9ر4 :mm

mm: (4,6...6,0)4th speed 1/min: 2250

Charge press. hPa: 750

mm: 6,1...6,9 mm: (5,8...7,2) TD travel Zero delivery (stop): Supply-pump pressure characteristic: Electr. shutoff: 1/min: 425 1/min: 600 Speed 1st speed Charge press. hPa: 750 ELAB volt: -Del.quantity cm3/: 0,0...3,0 Supply-pump bar: 2,3...2,9 1/min: 2250 pressure 1000H.: max. 2nd speed Charge press. hPa: 750 Idle delivery: Supply-pump 1st speed 1/min: 375
Del.quantity cm3/: 11.0..13.0
1000H.: (8.0...16.0) pressure bar: 7,0...7,6 Overflow quantity at overflow valve: 1/min: 425 2nd speed Del.quantity cm3/: 5.5...8.5 1000H.: (3.0...11.0) 1/min: 600 1st speed : 41...83 Oveflow quantity cm3/10s: (26...98) 2nd speed 1/min: 2250 High Idle: Charge press. hPa: 750 Speed 1/min: 525
Del.quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0) Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: Residual: 1st speed 1/min: 1000 Charge-air pressure-setting Speed 1/min: 800 Del.quantity : 2,5...3,5 1000H.: (1,0...5,0) hPa: 300 point LDA stroke mm: 6.8 Del.quantity cm3/: 33,5...34,5 1000H.: (31,0...37,0) Automatic starting fuel delivery: 1/min: 2700 2nd speed Charge press. hPa: 750 1/min: 100 1st speed Del.quantity cm3/: 0,0...4,0 1000H.: -Del.quantity cm3/: -1000H: 35,0 ind. 3rd speed 1/min: 2525 Charge press. hFa: 750 Del.quantity cm3/: 13,0...19,0 1000H.: (12,0...20,0) 4th speed 1/min: 2425 Charge press. hPa: 750 Del.quantity cm3/: 23,0...33.0 1/min: 250 2nd speed Del.quantity cm3/: - max. 1000H: 40,0 Shutoff electromagnet: 1000H.: (22,0...34,0) Cut-in 1/min: 2250 : 10,0 5th speed min. voltage Charge press. hPa: 750
Del.quantity cm3/: 37.5...39.5
1000H:: (36.3...40.7) Rated voltage : 12,0 Mounting and assembly dimensions: 6th speed 1/min: 1500 Charge press. hPa: 750 Del.quantity cm3/: 43,5...44,5 1000H.: (41,8...46,2) Designation mm 4 ر 3 . . . 2 ر 3 : KF 0ر6...6ر5: mm 5ر1...[ر1 : 1/min: 600 MS 7th speed mm Charge press. hPa: 750
Del.quantity cm3/: 32.0...35.0
1000H.: (30.5...36.5) mm : 3,0 mm : 17,0...19,0 mm : 9,8...13,2 SVS max. XΚ XL 1/min: 600 8th speed Del.quantity cm3/: 23,5...24,5 1000H: (21,0...27,0) Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

: VWW 1,6 W15 Test sheet : 27.10.87 Compl. date: : 23.02.88 Edition : 08.12.86 replaces : ISO 4113 Calibrating oil

: VE 4/ 9F2400 R224 Injection pump : 0 460 494 185 Type number

Customer-specific information

Customer

: 086-1_6L Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oC return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar : 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1250 Speed Setting value mm: 2,1...2,5

Supply-pump pressure:

1/min: 1250 Speed Setting value bar: 4,1...4,6

Full-load del. w/out charge press.:

1/min : 1500 Speed

Del.quantity cm3/ 1000H.: 31,5...32,5

cm3/: 2,5 1000H.: (3,0) Dispersion

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 11,0...13,0

cm3/: 2,5 1000H.: (3,0) Dispersion

Residual-Delivery Setting Speed 1/min: 550

Del.quantity cm3/ 1000H.: 2,5...3,5

Full-load speed regulation:

1/min: 2600

Del.quantity cm3/

1000H: 12,0...16,0

Start:

1/min: 100 Speed Del quantity cm3/1000H.: 35,0 mind

Load-dependent start of delivery:

1/min: 1250 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed

TD travel mn: 1,0...1,8 mm: (0,7...2,1)

1/min: 1250 2nd speed

TD travel mm: -

mm: (1,6...3,0) 1/min: 1800 3rd speed

mm: 4,2...5,0 mm: (3,9...5,3) TD travel

1/min: 2400 4th speed

mm: 6,1,..6,9 TD travel

mm: (5,8...7,2)

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 2,1...2,7 pressure

1/min: 1250 2nd speed

Supply-pump

pressure bar: 4,1...46

1/min: 2400 3rd speed

Supply-pump bar: 7,3...7,9 pressure Overflow quantity at overflow valve: 1/min: 600 1st speed Oveflow : 41...83 quantity cm3/10s: (26...98) 1/min: 2400 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 2800 1st speed Del.quantity cm3/: -1000H.: 0,0...4,0 1/min: 2600 2nd speed Del.quantity cm3/: -1000H.: (10,0...18,0) 1/min: 2500 3rd speed Del.quantity cm3/: 19,0...29,0 1000H.: (18.0...30.0) 1/min: 2400 4th speed Del.quantity cm3/: 26,8...28,8 1000H.: (25,6...30,0) 5th speed 1/min: 1500
Del.quantity cm3/: 31.5...32.5
1000H.: (29.8...34.2)
6th speed 1/min: 600 Del.quantity cm3/: 20,2...23,2 1000H.: (18,7...24,7) Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 375 1st speed Del.quantity cm3/: 11.0..13.0 1000H.: (8.0...16.0) 1/min: 425 2nd speed Del.quantity cm3/: 5.5...8.5 1000H.: (3,0...11,0) High Idle: Speed 1/min: 525 Del.quantity cm3/: 7,0...9,0 1000H.: (4,0...12,0)

Speed 1/min: 500
Del.quantity : 2,5...4,5
1000H.: (1,0...6,0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Del.quantity cm3/: ind. 1000H: 35,0

2nd speed 1/min: 380
Del.quantity cm3/: max. 1000H: 30,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation K : 3,2...3,4 mm KF : 5,6...6,0 mm MS 6ر1...2ر1 : mm : 3,2 : 17,0...19,0 SVS max. mm ΧK mm XL : 9,8...13,2 mm

Remarks:

Residual:

Note inst. in remarks column

: SOF 2.5 N : 30.09.85 Test sheet Compl. date: Edition : 20,05,88 : 19.12.86 replaces : ISO 4113 Calibrating oil

: VE 4/ 9F2100 R22-7 Injection pump

: 0 460 494 189 Type number

Customer-specific information Customer : SOFIM

: 8144,67,220 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oC return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0,2

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection-pump setting values fest specifications in parentheses

Timing-device travel:

1/min: 1800 Setting value mm: 7,6...8,0

Supply-pump pressure:

1/min: 1800 Speed Setting value bar: 6,3...6,9

Full-load del. w/out charge press.:

1/min: 2000 Speed

Del.quantity cm3/

1000H.: 36,9...37,9 cm3/: 2,5 1000H.: (3,0) Dispersion

Low-idle speed regulation:

1/min: 370

Del.quantity cm3/ 1000H.: 8,0...12,0

Dispersion cm3/: 2,5 1000H.: (3,0)

Full-load speed regulation:

1/min: 2350 Speed

Del.quantity cm3/

1000H: 18,5...24,5

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 55.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed

TD travel mm: 0,9...1,7

mm: (0,6...2,0)1/min: 1800

2nd speed TD travel mm:

mm: (7,1...8,5)

1/min: 2000 3rd speed

TD travel mm: 8,3...9,1 mm: (8,0...9,4)

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 3,2...3,8 1/min: 1800 pressure

2nd speed

Supply-pump

bar: 6,3...6,9 pressure

3rd speed 1/min: 2000

Supply-pump

bar: 6,7...7,3 pressure

Overflow quantity at overflow valve:

1/min: 600 1st speed Oveflow : 41...83 quantity cm3/10s: (26...98)

K22

2nd speed 1/min: 2100 : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 2500 1st speed Del.quantity cm3/: 0,0...4,5 1000H.: -1/min: 2350 2nd speed Del.quantity cm3/: 1000H.: (17.5...25.5)
3rd speed 1/min: 2100
Del.quantity cm3/: 36.1...38.7
1000H.: (35.1...39.7)
4th speed 1/min: 2000 Del.quantity cm3/: -1000H.: (35,1...39,7) 1/min: 1100 5th speed Del.quantity cm3/: 42,5...45,5 1000H.: (41,7...46,3) 1/min: 600 6th speed Del.quantity cm3/: 34,3...37,3 1000H.: (32,8...38,8) Zero delivery (stop): Mech, shutoff: 1/min: 2100 Speed Del.quantity cm3/: 0..3 1000H.: -Idle delivery: 1/min: 370 1st speed Del.quantity cm3/: -1000H.: (6,0...14,0) 1/min: 420 2nd speed Del.quantity cm3/: -1000H.: 0,0...1,5 1/min: 500 3rd speed Del.quantity cm3/: -1000H.: 0,0...3,0 Automatic starting fuel delivery: 1/min: 400 1st speed Del.quantity cm3/: -1000H: 37,0 ind. 1/min: 480 2nd speed Del.quantity cm3/: -max. 1000H: 38,0 Shutoff electromagnet: Cut-in

: 10,0

: 12,0

min. voltage Rated voltage

K23

Mounting and assembly dimensions:

Designation

K mm : -KF mm : 5,4...5,7 MS mm : 1,7...1,9

Remarks:

:

Note inst. in remarks column

Test sheet : VWW 1,6 W19 : 28.10.87 Compl. date:

Edition : 22.02.88 : 02.04.87 replaces Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R221-2

: 0 460 494 207 Type number

Customer-specific information

Customer

: 086-1.6L Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer: 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness mm : 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1250 Setting value mm: 2,1...2,5

Supply-pump pressure:

1/min: 1250 Setting value bar: 4,0...4,6

Full-load del. W/out charge press.:

1/min : 1000 Speed

Deliquantity cm3/

1000H.: 28,5...29,5

cm3/: 2,5 Dispersion 1000H.: -

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/

1000H.: 11,0...13,0

Residual-Delivery Setting 1/min: 550

Del.quantity cm3/

1000H.: 2,5...3,5

Full-load speed regulation:

1/min: 2600 Speed

Del.quantity cm3/

1000H: 12,0...16,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 35,0 mind

Load-dependent start of delivery:

1/min: 1250 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed

TD travel mm: 1,0...18 mm: (0,8...2,0)

1/min: 1250 2nd speed

mm: 2,1...2,5 mm: (1,8...2,8) TD travel

3rd speed 1/min: 1800

TD travel mm: 4,2...5,0

mm: (4,0...5,2)

4th speed 1/min: 2400

mm: 6.1...6.9 mm: (5.9...7.1) TD travel

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 2,1...2,7 pressure

bar: -

1/min: 1250 2nd speed

Supply-pump

bar: 4,0...4,6 pressure

bar:

1/min: 2400 3rd speed

Supply-pump bar: 7,3...7,9 pressure bar: -Overflow quantity at overflow valve: 1/min: 600 1st speed Oveflow : 41...83 cm3/10s: (26...98) quantity 1/min: 2400 2nd speed : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 2600 1st speed cm3/: 12,0...16,0 1000H.: (10,0...18,0) Del.quantity 1/min: 2800 2nd speed Del.quantity cms/...
1000H.: cm3/: 0.0...6.0 1/min: 2500 cm3/: 19.0...29.0 3rd speed Del.quantity 1000H.: (18,0...30,0) 1/min: 2400 4th speed Del.quantity cm3/: 27,5...29,5 1000H.: (27,0...30,0) 1/min: 1000 5th speed Del.quantity cm3/: -1000H.: (27,7...30,3) 1/min: 600 6th speed Del.quantity cm3/: 22,5...25,5 1000H.: (22,2...25,8) Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity_cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1st speed 1/min: 375 cm3/: 11,0..13,0 Deliquantity 1000H.: (8,0...16,0) 1/min: 425 2nd speed Del.quantity cm3/: 5.5...8.5 1000H.: (3.0...11.0)

1/min: 500 Speed 5,4...5 : Del.quantity 1000H.: (1,0...6,0) Automatic starting fuel delivery: 1st speed 1/min: 180 Del.quantity cm3/:ind. 1000H: 35,0 2nd speed 1/min: 380 Deliquantity cm3/: -1000H: 30,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage Rated voltage : 12,0 Mounting and assembly dimensions: Designation : 3,2...3,4 mm **KF** . 5,6...6,0 MS 6ر1...2 : mm : 3,4 : 17,0...19,0 SVS max. mm ХK mm XL 3ر15...9 : 11 mm Remarks:

:

High Idle:

1/min: 525 Speed Del.quantity cm3/: 7.0...9.0 1000H.: (4,0...12,0)

Residual:

K25

Note inst. in remarks column

: OPE 2.3 M2 : 20.11.87 Test sheet Compl. date: Edition : 16.02.88

replaces

Calibrating oil : ISO 4113

: VE 4/ 9F2200 L243-4 Injection pump

: 0 460 494 219 Type number

Customer-specific information

Customer : OPE

: 2,3 D+ , 88 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1200 Setting value mm: 4,3...4,7

Supply-pump pressure:

1/min: 1200 Speed Setting value bar: 4,0...4,6

Full-load del. w/out charge press.:

Speed 1/min : 1200

Deliquantity cm3/

1000H.: 43,0...44,0

cm3/: 2,5 Dispersion 1000H.:

Low-idle speed regulation:

Speed 1/min: 270

Del.quantity cm3/

1000H.: 10,0...14,0

cm3/: 2,5 Dispersion 1000H.: -

Full-load speed regulation:

1/min: 2450 Speed

Deliquanticy cm3/

1000H: 21,0...27,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 52,0 mind '

Load-dependent start of delivery:

1/min: 1200 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600

mm: 0.6...1.4 TD travel 1/min: 800 2nd speed

TD travel mm: 1,9...2,7

mm: (1,6...3,0)1/min: 1200

3rd speed TD travel

mm: 4,3...4,7 mm: (3,8...5,2)

1/min: 2200 4th speed

mm: 9,7...10,5 mm: (9,4...10,8) TD travel

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

pressure bar: 2,4...3,0

bar: -

1/min: 800 2nd speed

Supply-pump

pressure bar: 3,0...3,6

1/min: 1200 3rd speed

Supply-pump

pressure bar: 4,0...4,6

bar: -

1/min: 2200 4th speed

Supply-pump pressure 1,5...7 bar: 6 Overflow quantity at overflow valve: 1/min: 600 1st speed Oveflow : 41...83 cm3/10s: (26...98) quantity 1/min: 2200 2nd speed 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 2450 1st speed Del.quantity cm3/: 21,0...27,0 1000H.: (20,0...28,0) 2nd speed 1/min: 2700 Del.quantity cm3/: 0.0...3.0 1000H.: -3rd speed 1/min: 2600 Del.quantity cm3/: 4,0...12,0 1000H.: (3,0...13,0) 1/min: 2200 4th speed Del.quantity cm3/: 34,8...37,8 1000H.: (34,0...38,6) 1/min: 1200 5th speed Del.quantity cm3/: 43,0....45,8) 1/min: 600 6th speed Del.quantity cm3/: 33.5...36.5 1000H.: (32.0...38.0) Zero delivery (stop): Electr. shutoff: 1/min: 270 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: -Idle delivery: 1st speed 1/min: 270 Del.quantity cm3/: -1000H.: (8,0...16,0) 1/min: 320 2nd speed cm3/: 3,0...9,0 Del.quantity 1000H.: (2,5...9,5) 1/min: 400 3rd speed Del.quantity cm3/: 0,0...2,6 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 130 Del.quantity cm3/: -

1000H: 52,0

2nd speed 1/min: 230 Del.quantity cm3/: max. 1000H: 35,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4
KF mm : 5,6...6,0
MS mm : 1,7...2,1
SVS max. mm : 2,2
XK mm : 17,0...19,0
XL mm : 9,7...13,1

Remarks:

K27

ind.

Note inst. in remarks column

: FIA 1,9 H Test sheet : 06.11.87 Compl. date: Edition : 16.11.87

replaces Calibrating oil

: ISO-4113

: VE 4/ 9F2100 L184-1 Injection pump

Type number

: 0 460 494 236

Customer-specific information Customer : FIAT

Engine

: M707 CT 19.0

TEST BENCH REQUIREMENTS

Calibrating-oil OC return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar : 0.35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar : 130...133 pressure

Test inj. tubing : 1 680 750 073

Outside diameter ; 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke mm : -(from BDC); -

Injection-pump setting values lest specifications in parentheses

Timing-device travel:

1/min: 1500 Charge press. hPa: 800 Setting value mm: 5,4...5,8

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 800 Setting value bar: 6,1...6,7 Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 800 Deliquantity cm3/

1000H.: 46,3...47,3 cm3/: 2,5

Dispersion 1000H : -

Full-load del. w/out charge press.:

1/min : 800 Speed Del.quantity cm3/ 1000H.: 35,6...36,6

Low-idle speed regulation:

Speed 1/min: 350 Charge press. hPa: -Del.quantity cm3/ 1000H.: 8,0...12,0

cm3/: 2,5 Dispersion 1000H.: -

Full-load speed regulation:

1/min: 2400 Speed Charge press. hPa: 800

Del.quantity cm3/

1000H: 15,0...21,0

Start:

Speed 1/min: 100 Del. quantity : 57,0

Load-dependent start of delivery:

1/min: 1500 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 800 1st speed Charge press. hPa: 800

TD travel mm: 1,7...2,5 mm: (1, 4, ..., 8)

1/min: 1500 2nd speed Charge press. hPa: 800

TD travel mm: 5,4...5,8

mm: (4,9...6,3)

1/min: 2000 3rd speed Charge press. hPa: 800 mm: 7,6...8,4TD travel

mm: (7,3...8,7)

Supply-pump pressure characteristic:	Del.quantity cm3/: 35,636,6 1000H.: (33,638,6)
1st speed 1/min: 400	8th speed 1/min: 600
Charge press. hPa: 800	Charge press. hPa: -
Supp (v-bump	Del.quantity cm3/: 37,339,3
pressure bar: 2.83.4	1000H: -
pressure bar: 2.83,4 2nd speed 1/min: 800	
Charge press. hPa: 800	Zero delivery (stop):
Supply-pump !	
pressure bar: 4,14,7	
3rd speed 1/min: 1500	Electr. shutoff:
Charge press. hPa: 800	
Supply-pump !	Speed 1/min: 350
pressure bar: 6.16.7	ELAB volt: -
4th speed 1/min: 2000	Del.quantity cm3/: 0,03,0
Charge press. hPa: 800	max. 1000H.: -
Supply-pump !	
pressure bar: 7,58,1	Idle delivery:
1	•
Overflow quantity at overflow valve:	1st speed 1/min: 350
1	Del.quantity cm3/: 8,012,0
1st speed 1/min: 600	Del.quantity cm3/: 8.012.0 1000H.: (6.014.0)
Charge press. hPa: -	2nd speed 1/min: 400
Oveflow : 4183	Del.quantity cm3/: 2,08,0
quantity cm3/10s: (2698)	(0رۇ0ر أ) : 1000H.: (أ)
2nd speed 1/min: 2100	3rd speed 1/min: 500
Charge press. hPa: 800	Del.quantity cm3/: 0,01,6
Overflow : 55138	1000H.: -
quantity cm3/10s: (40153)	
	Automatic starting fuel delivery:
Delivery-quant. and breakaway char.:	
	1st speed 1/min: 300
1st speed 1/min: 800	
Charge-air pressure-setting !	Deliquantity cm3/: - ind. 1000H: 55,0
point hPa: 450	·
LDA stroke mm: 4,5	2nd speed 1/min: 500
Del.quantity cm3/: 45,046,0	2nd speed
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0)	2nd speed 1/min: 500 Del.quantity cm3/: - max. 1000H : 45,0
LDA stroke mm: 4.5 Del.quantity cm3/: 45.046.0 1000H.: (43.048.0) 2nd speed 1/min: 2550	Del.quantity cm3/: - max. 1000H : 45,0
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed	Del.quantity cm3/: -
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed	Del.quantity cm3/: - max. 1000H : 45,0 Shutoff electromagnet:
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: -	Del.quantity cm3/: - max. 1000H : 45,0 Shutoff electromagnet: Cut-in
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 1	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 1000H.: 800 1000H.: - 1000H.:	Del.quantity cm3/: - max. 1000H : 45,0 Shutoff electromagnet: Cut-in
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0)	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 I	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions:
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 I000H.: 14,022,0) I000H.: 14,022,0] I000H.: 14,022,022,022,022,022,022,022,022,022,022,	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 1000H.: - 800 1000H.: - 3rd speed 1/min: 2400 1000H.: - 3rd speed 1/min: 2400 1000H.: - 1000H.: - 1000H.: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 1000H.: 14,022,0 1000H.: 14	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4
Del.quantity cm3/: 45.046.0 1000H.: (43.048.0) 2nd speed 1/min: 2550 1000H.: - 800 1000H.: - 3rd speed 1/min: 2400 1000H.: - 3rd speed 1/min: 2400 1000H.: 14.021.0 1000H.: 14.022.0) 4th speed 1/min: 2300 1000H.: - 10	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0
Del.quantity cm3/: 45.046.0 1000H.: (43.048.0) 2nd speed 1/min: 2550 1000H.: - 800 1000H.: - 3rd speed 1/min: 2400 1000H.: - 1000H.: - 1000H.: 14.021.0 1000H.: 14.022.0) 4th speed 1/min: 2300 1000H.: - 1000H.: - 5th speed 1/min: 2100 1	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min.voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4
Del.quantity cm3/: 45.046.0 1000H.: (43.048.0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05.0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15.021.0 1000H.: 14.022.0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036.0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549.5	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del,quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del,quantity cm3/: 46,549,5 1000H.: (45,850,2)	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min.voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4
Del.quantity cm3/: 45.046.0 1000H.: (43.048.0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15.021.0 1000H.: 14.022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549,5 1000H.: (45,850,2) 6th speed 1/min: 1500	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4 XK mm : 20,022,0 XL mm : 12,315,7
Del.quantity cm3/: 45.046.0 1000H.: (43.048.0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15.021.0 1000H.: 14.022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549,5 1000H.: (45,850,2) 6th speed 1/min: 1500 Charge press. hPa: 800	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549,5 1000H.: (45,850,2) 6th speed 1/min: 1500 Charge press. hPa: 800 Del.quantity cm3/: 46,347,3	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4 XK mm : 20,022,0 XL mm : 12,315,7
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549,5 1000H.: (45,850,2) 6th speed 1/min: 1500 Charge press. hPa: 800 Del.quantity cm3/: 46,347,3 1000H.: (44,848,8)	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4 XK mm : 20,022,0 XL mm : 12,315,7 Remarks:
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549,5 1000H.: (45,850,2) 6th speed 1/min: 1500 Charge press. hPa: 800 Del.quantity cm3/: 46,347,3 1000H.: (44,848,8) 7th speed 1/min: 800	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4 XK mm : 20,022,0 XL mm : 12,315,7
Del.quantity cm3/: 45,046,0 1000H.: (43,048,0) 2nd speed 1/min: 2550 Charge press. hPa: 800 Del.quantity cm3/: 0,05,0 1000H.: - 3rd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/: 15,021,0 1000H.: 14,022,0) 4th speed 1/min: 2300 Charge press. hPa: 800 Del.quantity cm3/: 29,036,0 1000H.: - 5th speed 1/min: 2100 Charge press. hPa: 800 Del.quantity cm3/: 46,549,5 1000H.: (45,850,2) 6th speed 1/min: 1500 Charge press. hPa: 800 Del.quantity cm3/: 46,347,3 1000H.: (44,848,8)	Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm : 3,23,4 KF mm : 5,66,0 MS mm : 1,31,7 SVS max. mm : 5,4 XK mm : 20,022,0 XL mm : 12,315,7 Remarks:

Note remarks

: KHD 1 g 28 : 27.06.88 Test sheet Edition Replaces : 26.06.87 Test oil : ISO-4113

Combination no. : 0 400 464 133

Injection pump

Pump designation : PES4A80D410/3RS1349

EP type number : 0 410 484 021

Governor

Governor design. : RSV325...1175A8C2163

-4L

: 0 420 232 476 Governer no.

Customer-spec. information Customer : KHD

Engine : F4L912

: 51.0 1st version kW : 2350 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

1st speed

Phasing

Tolerance + - 0

BASIC SETTING

rpm: 1175

Rack travel in mm : 10.10...10.20

Rack travel in mm : 9.00...12.00

Del.quantity cm3/: 5.7...5.8

100 s: (5.6...6.0)

: 0-90-180-270

: 0.50(0.75)

cm3 : 0.25Spread

100 s: (0.40)

2nd speed rpm : 325
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.7)

cm3 : 0.20Spread

100 s: (0.30)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1175 Speed

: 57.5...58.5 Del.quantity

1000 : (56.0...60.0)

Spread cm3: 2.5

1000 : (4.0)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 9.10

rpm : 1215...1225 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

3rd rack travel in: 4.00

rpm : 1255...1285 Speed

4th rack travel in: 1415

LØ3

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 13...17 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 5.50 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 325 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 460...520

TORQUE CONTROL Dimension a mm : 0.85 Torque control curve - 1st version 1st speed rpm : 1175 Rack travel in m: 10.10...10.20 2nd speed rpm : 500 Rack travel in m: 11.00...11.10

3rd speed rpm : 990 Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 800 Del.quantity cm3/: 55.0...57.0 1000 s: (53.0...59.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.10 rpm : 1215...1225 Speed

STARTING FUEL DELIVERY

Remarks:

: TK\$2.70

APPLICATION Tractor (tractor engines)

Note remarks

: DAF 8.3 n 5 : 27.06.88 Test sheet Edition : 12.09.86 Replaces Test oil : ISO-4113

: 0 400 676 175 Combination no.

Injection pump

Pump designation : PE6A95D41ORS2575 EP type number : 0 410 696 984

Governor

: RSV250...1200ASC2198 Governor design.

-1L

: 0 420 232 442 Governer no.

Customer-spec. information Customer : DAF

Engine : DH825

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 7.50...10.50 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference CS: 3.00...4.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm: 10.40...10.50

Del.quantity cm3/ : 7.3...7.5

100 s: (7.1...7.7)

cm3 : 0.35Spread

100 s: (0.60)

rpm : 250 2nd speed

Rack travel in mm : 6.10...6.30

Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

cm3 : 0.35Spread 100 s: 0.55

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200 : 73.0...75.0 Del.quantity

: (71.0...77.0) 1000

: 3.5 cm3 Spread

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 9.40

rpm : 1240...1250 Speed 2nd rack travel in: 4.00 Speed rpm : 1300...1330 3rd rack travel in: 4.00 rpm : 1340...1370 Speed 4th rack travel in: 1505 Speed ram : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.70 Speed rpm : 250 Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 Speed rpm : 655...715 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.40...10.50 2nd speed rpm : 500 Rack travel in m: 11.20...11.30 3rd speed rpm : 800 Rack travel in m: 11.10...11.20 4th speed rpm : 940 Rack travel in m: 10.70...11.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/ : 74.5...77.5 1000 s: (72.0...80.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.0...12.0 Firing order : 1-5-3-6-2-4 Note remarks : KHD 1 9 4 : 27.06.88 : 30.03.87 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 400 866 111 Injection pump Pump designation : PES6A85D410/3RS2611 : 0 410 886 902 EP type number Governor : RSV325...1200A0C2148 Governor design. : 0 420 232 293 Governer no. Customer-spec. information Customer Engine : F6L913 1st version kW : 84.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.00 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses

: 2.50...2.60

: (2.45...2.65)

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Prestroke mm

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50(0.75) BASIC SETTING 1st speed rpm : 1200 Rack travel in mm : 11.3...11.4 Del.quantity cm3/: 6.9...7.0 100 s: (6.7...7.2) cm3 : 0.3 Spread 100 s: (0.45) rpm : 325 2nd speed Rack travel in mm: 8.4...8.6 Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6) cm3 : 0.2 Spread 100 s: (0.4) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed : 69.5...70.5 Del.quantity 1000 : (67.5...72.5) : 3.0 Spread cm3 1000 : (4.5) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 10.30 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 Speed rpm : 1315...1345 4th rack travel in: 1425 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 28...36

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 8.50 rpm : 325 Speed

Rack travel in mm : 8.40...8.60

Rack travel in mm : 2.00

rpm : 450...510 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.30...11.40

2nd speed rpm : 500

Rack travel in m: 11.80...11.90

3rd speed rpm : 975

Rack travel in m: 11.60...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 63.5...65.5 1000 s: (61.0...68.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

rack travel in mm : 16.90...17.30

Remarks:

: DX

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet : MWM 6.2 e 3 : 01.07.88 Edition : 12.09.86 Replaces Test oil : ISO-4113

Combination no. : 0 400 866 114

Injection pump

Pump designation : PES6A90D320/3RS2660

EP type number : 0 410 896 078

Governor

Governor design. : RSV325...1200A0C2182

-1R

Governer no. : 0 420 233 192

Customer-spec. information ; MWM Customer

: TD226B-6 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.95...3.05 Prestroke mm ; (2.90...3.10)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference CS: 3.50...4.50

BASIC SETTING

rpm : 1200 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 9.7...9.8

100 s: (9.5...10.0)

cm3 : 0.30Spread

100 s: (0.45)

rpm : 325 2nd speed

Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 0.8...1.4

100 s: (0.6...1.6)

cm3 : 0.25 Spread 100 s: 0.40

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 700

Del.quantity : 97.3....00.5)

: 3.0 cm3 Spread

1000 : 4.5

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.00

rpm : 1240...1250 Speed

L09

2nd rack travel in: 4.00

rpm : 1275...1305 Speed

3rd rack travel in: 4.00

Speed rpm : 1300...1330

4th rack travel in: 1465

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 6.50

Testing:

rpm : 100 Speed

Minimum rack trave: 19.50

rpm : 325 Speed

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

Speed rpm : 495...555

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 12.00...12.10

2nd speed rpm : 500

Rack travel in m: 12.30...12.40

3rd speed rpm : 1115

Rack travel in m: 12.10...12.30

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 700 Pressure

Rack travel mm : 12.30...12.40

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.10...10.20

2nd pressure hPa : 275

Rack travel in m: 11.70...11.80

3rd pressure hPa : 80

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 275

Speed rpm : 500

Del.quantity cm3/: 83.0...85.0

1000 s: (80.5...87.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed

rpm : 1240...1250

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...145.0 1000 s: (132.0...148.0)

Rack travel in mm : 19.50...21.00

Remarks:

APPLICATION

Tractor (tractor engines)

Note remarks

: MB 5.7 q 18 : 30.05.88 Test sheet Edition : 25.3.88 Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 218

Injection pump

Pump designation : PES6A90D410RS2293 : 0 410 896 031 EP type number

Governor

Governor design. : RSV350...1400A0C1080

: 0 420 232 408 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M 352 Engine

1st version kW : 92.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set squal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 6.3...6.4

100 s: (6.1...6.6)

cm3 : 0.3Spread

100 s: (0.4)

2nd speed rpm : 350.0 Rack travel in mm : 6.6...7.2 Del.quantity cm3/: 1.0...1.2

100 s: (0.8...1.4)

cm3 : 0.2Spread 100 s: (0,4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 63.0...64.0 Del.quantity 1000 : (61.0...66.0)

: 3.00 cm3 Spread

1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 68...76

Testing:

1st rack travel in: 8.70

Speed rpm : 1440...1445

2nd rack travel in: 4.00

Speed rpm : 1473...1486

3rd rack travel in: 4.00

rpm : 1510...1540 Speed 4th rack travel in: 1570 rpm : 0.30...1.40 Speed 5th rack travel in: 1445...1455 rpm : 8.70 Speed LOW IDLE 1 Control lever position degrees: -3 Setting point w/out bumper spring rpm : 350° Rack travel in mm: 6.80 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 350 Speed Rack travel in mm : 6.70...6.90 Rack travel in mm : 2.00 Speed rpm : 450...510 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 9.70...9.80 2nd speed rpm : 600 Rack travel in m: 9.90...10.10 FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 51.0...53.0 1000 s: (49.0...55.0) rpm : 850 Speed Del.quantity cm3/: 56.0...58.0 1000 s: (53.5...60.5) STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 15.00...15.40 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.60...7.20 Del.quantity cm3/: 10.0...12.0 1000 s: (8.0...14.0) cm3 : 2.50 Spread 1000 s: (4,50) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DAF 6.2 o 1 Test sheet Edition : 28.06.88 : 12.10.86 : ISO-4113 Replaces Test oil Combination no. : 0 400 876 333 Injection pump Pump designation : PES6A95D32ORS2693Z EP type number : 0 410 896 913 Governor : RSV300...1300A0C2195 Governor design. : 0 420 233 200 Governer no. Customer-spec. information : DAF Customer : DNS 620 Engine 1st version kW : 150.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar : 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm ; 2.00...2.10 : (1.95...2.15) Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference O CS : 2.50...3.50

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

cm3 : 0.35Spread

100 s: (0.60)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rēm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 700

Del.quantity : 87.0...91.0)

cm3 : 3.5 Spread 1000 : (6.0)

RATED SPEED

1st version Control lever

position degrees: 54-62

Testing:

1st rack travel in: 10.70

Speed rpm : 1340...1350

2nd rack travel in: 4.00

rpm : 1410...1440 Speed

3rd rack travel in: 4.00 Speed rpm : 1430...1460

4th rack travel in: 1595 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 300' Rack travel in mm: 5.90

Testing:

rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm: 300

Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 rpm : 570...630

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1290

Rack travel in m: 11.70...11.90

2nd speed rpm : 500

Rack travel in m: 12.20...12.30

3rd speed rpm : 1020

Rack travel in m: 11.90...12.10

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 600 Speed Pressure hPa : 700 Rack travel mm : 12.20...12.30

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 11.20...11.40

2nd pressure hPa : 290

Rack travel in m: 12.00...12.10

3rd pressure hPa : 250

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 1290 Speed

Del.quantity cm3/: 86.0...88.0 1000 s: (83.5...90.5)

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/ : 65.0...67.0

1000 s: (63.0...69.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...145.0

1000 s: (127.0...148.0)

Rack travel in mm: 19.50...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.30...6.50 Del.quantity cm3/ : 7.0...11.0

1000 s: (4.5...13.5)

cm3 : 3.5 Spread 1000 s: (5.5)

Remarks:

Note remarks

: MB 18,3 c Test sheet : 20.6.88 Edition Replaces : 10.85 Test oil : ISO-4113

Combination no. : 0 401 849 705

Injection pump

Pump designation : PE10P110A320LS3818

Governor

Governor design: : RQ300/1150PA437-2

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M 423 Engine

1st version kW : 261.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.10...3.20 : (3.05...3.25) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-8-7-6-3-2-10-9-4

: 0-27-72-99-144-171-2 Phasing

16-243-288-315 : 0.50 (0.75)

Tolerance + - 0

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 12.6...12.8

100 s: (12.3...13.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm: 300 Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.2...2.0

100 s: (0.9...2.3)

cm3 : 0.4 Spread

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 600

Rack travel in mm: 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150 Speed

: 126.0...128.0 Del.quantity

1000 : (123.5...130.5)

cm3 : 4.00 Spread

1000 : (8.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 13.5

Testing:

1st rack travel in: 10.20

rpm : 1190...12.05 Speed

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 8.0

Testing:

rpm : 100 Speed Minimum rack trave: 9.50

Speed rpm: 300 Rack travel in mm: 7.90...8.10

Rack travel in mm : 2.00

rpm : 430...470 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.20...11.30

2nd speed rpm : 600 Rack travel in m: 11.70...11.90 3rd speed rpm : 900

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 600 Speed rpm

Del.quantity cm3/: 109.0...113.0 1000 s: (106.0...116.0)

Speed rpm : 900 Del.quantity cm3/ : 118.0...123.0 1000 s: (115.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1190...1205 Speed

STARTING FUEL DELIVERY

speed rpm : 100

Del.quantity cm3/: 140.0...160.0

1000 s; (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: PEN 7.0 b 2 Test sheet : 28.06.88 Edition : 05.84 Replaces : ISO-4113 Test oil

Combination no. : 0 401 876 272

Injection pump

Pump designation : PE6P110A320RS260W EP type number : 0 411 816 154

Governor

Governor design. : RSV250...1250P0/374-

2R

: 0 421 833 068 Governer no.

Customer-spec. information

: VOLVO-PENTA Customer

: TAMD 70E Engine

1st version kW : 228.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

x Length mm : 6,00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 14.1...14.3

100 s: (13.8...14.6)

Spread cm3 : 0.40

100 s: (0.75)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 900

: 141.0...143.0 Del.quantity 1000 : (138.0...146.0) cm3 : 4.0 1000 : (7.5)

Spread

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.10 Speed rpm : 1290...1300

2nd rack travel in: 4.00

rpm : 1390...1420 Speed

4th rack travel in: 1510

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 5.70 rpm : 250 Speed Rack travel in mm : 6.10...6.30 Rack travel in mm: 2.00 rpm : 480...540 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : 900 Pressure Rack travel mm : 12.10...12.20 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.00...9.40 2nd pressure hPa : 590 Rack travel in m: 11.30...11.40 3rd pressure hPa : 300 Rack travel in m: 9.70...9.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -Speed rpm : 700 Del.quantity cm3/ : 85.0...88.0 1000 s: (82.0...91.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1290...1300 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0 Rack travel in mm : 20.00...21.00 LOW IDLE

Remarks: APPLICATION Navy

Speed rpm : 250 Rack travel in mm : 6.10...6.30

Del.quantity cm3/: 11.0...15.0 Spread cm3: 3.0 1000 s: (6.0) BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : PEN 7.1 b Test sheet : 27.06.88 Edition Replaces : 10.85 : ISO-4113 Test oil Combination no. : 0 401 876 315 Injection pump Pump designation : PE6P110A320RS492 EP type number : 0 411 816 161 Governor Governor design. : RSV650...750P4/421 Governer no. : 0 421 833 120 Customer-spec. information : VOLVO-PENTA Customer : TJD71G Engine 1st version kW : 127.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 3.00...3.10 Prestroke mm

: (2.95...3.15) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 13.4...13.6

100 s: 13.1...13.9

cm3 : 0.40 Spread

100 s: (0.75)

2nd speed rpm : 650 Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.30

Spread 100 s: (0.60)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 134.0...136.0 Del.quantity 1000 : (131.0...139.0)

cm3 : 4.0

Spread 1000 : (7.5)

RATED SPEED

1st version Control lever

position degrees: 35...43

Testing:

1st rack travel in: 11.6 Speed rpm : 750...755

2nd rack travel in: 4.0 Speed rpm: 775...785

4th rack travel in: 930

L19

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 29...37
Setting point w/out bumper spring

rpm : 650 Rack travel in mm: 6.10

Speed rpm : 650 Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

rpm : 660...700 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 Speed rpm : 750...755

LOW IDLE

Speed rpm : 650 Rack travel in mm : 6.00...6.20

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90 **APPLICATION** Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: RVI 14.9 f : 09.03.87 Test sheet Edition Replaces : 25.9.86 Test oil : ISO-4113

Combination no. : 0 402 048 044

Injection pump

Pump designation : PES8P120A320RS507 EP type number : 0 412 028 023

Governor

Governor design. : RQV275...1050PA665-1 Governer no. : 0 421 813 468

Customer-spec. information Customer : RVI

Engine : MIVR083530C

1st version kW : 280.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6,00x1,50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1- 8- 4- 2- 7- 3-Firing order

6- 5

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 6.2...6.4 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8

Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.40...1.60

2nd speed rpm : 450

travel mm : 3.40 3rd speed rpm : 800 : 3.40...3.80

travel mm : 5.80...6.00
4th speed rpm : 1050
travel mm : 7.60...7.80

travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 700

Del.quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 10.00 rpm : 1105...1115 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

rpm : 200 Speed Minimum rack trave: 6.40 rpm : 275 Speed

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 280...405 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Pressure hPa : 700

Rack travel mm : 11.00...11.10

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 150 Rack travel in m: 10.60...10.80

śrd pressure hPa : 110

Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 650

L22

Del.quantity cm3/: 165.0...171.0 1000 s: (162.0...174.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 116.0...118.0

1000 s: (113.0...121.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

rpm : 1105...1115 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.60...4.80

Remarks:

Start-of-delivery mark 13° cam angle after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 14,9 f2 : 27.03.87 Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 048 045 Injection pump Pump designation : PES8P120A320RS507 : 0 412 028 023 EP type number Governor Governor design. : RQV275...1050PA665 Governer no. : 0 421 813 370 Customer-spec. information : RVI Customer Engine : MIVS083530 1st version kW : 268.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-8-4-2-7-3-

6- 5

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 11.2...11.3

Del.quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

: 1.30...1.70 travel mm

2nd speed rpm : 400

travel mm : 3.00...3.50 3rd speed rpm : 525

travel mm : 4.00...4.40

4th speed rpm : 650 travel mm : 4.90...5.30

5th speed rpm : 1050

travel mm : 7.60...7.80

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rom : 1050 Aneroid pressure h: 700

Del.quantity : 187.0...192.0)
1000 : (184.0...192.0)
1000 : (5.00)

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 10.20

rpm : 1105...1115 Speed

2nd rack travel in: 4.00

Speed rpm : 1195...1225

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

rpm : 100 Speed Minimum rack trave: 6.40 Speed rpm : 275

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 290...405 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 700 Pressure

Rack travel mm : 11.20...11.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.40

2nd pressure hPa : 280

Rack travel in m: 10.80...10.90

3rd pressure hPa : 220

Rack travel in m: 9.50...9.70

START CUT-OUT

1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

L24

Aneroid pressure h: 700

rpm : 650 Speed

Del.quantity cm3/: 170.0...176.0 1000 s: (167.0...179.0)

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 114.0...116.0

1000 s: (111.0...119.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1105...1115

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 13° cam angle

after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks : 1-8-4-2-7-3-Firing order 6- 5 : RVI 14,9 e Test sheet : 13.05.87 Edition : 5.85 Replaces Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 402 048 701 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES8P120A320RS3124 Time to cyl. no. : 5 EP type number : 0 412 028 701 Governor BASIC SETTING Governor design. : RQ750PA596 Governor no. : 0 421 801 : 0 421 801 149 1st speed rpm : 700 Rack travel in mm : 11.40...11.50 Customer-spec. information Customer Del.quantity cm3/: 26.7...26.9 : MIVS (R) 083530 Engine 100 s: (26.4...27.2) 1st version kW : 320.0 : 1500 Rated speed Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil rpm : 250.0 2nd speed inlet temp. °C Rack travel in mm : 4.2...4.4 Del.quantity cm3/ : 1.5...2.1 : 38...42 Overflow valve 100 s: (1.2...2.4) : 1 417 413 025 Spread cm3 : 0.8100 s: (1.2) Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 1 688 901 019 1st version assembly rpm : 700 Speed : 267.0...269.0 Del.quantity Opening 1000 : (264.0...272.0) : 207...210 pressure, bar : 5.00 Spread cm3 Orifice plate 1000 : (9.00) : 0,8 diameter mm RATED SPEED Test lines : 1 680 750 067 1st version Outside diameter Testing: 1st rack travel in: 10.40 Speed rpm: 750...755 x Wall thickness : 6.00x1.50x1000 x Length mm 2nd rack travel in: 4.00 Speed rpm: 775...785 (A) Injection pump setting values 4th rack travel in: 900 Insp. values in parentheses

BREAKAWAY

Speed

1st version

rpm : 0.00...1.00

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

1mm rack travel less than

full load rack tr: 10.40 Speed rpm : 750...755

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1- 8- 4- 2- 7- 3firing order 6- 5 : RVI 14,9 d Test sheet : 13.05.87 Edition : 12.9.86 Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-270-315 Combination no. : 0 402 048 702 Tolerance + - 3 : 0.50 (0.75) Injection pump Pump designation : PES8P120A320RS3146 BASIC SETTING EP type number : 0 412 028 702 1st speed rpm : 500 Governor Governor design. : RQ275/950PA753 : 0 421 801 282 Rack travel in mm : 12.70...12.80 Governer no. Customer-spec. information Customer : RVI : MIVR083530 Engine cm3 : 0.5Spread 1st version kW : 294.0 : 1900 Rated speed TEST BENCH REQUIREMENTS 2nd speed Test oil inlet temp. °C : 38...42 cm3 : 0.8 Spread Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -2 rpm : 950 Test nozzle holder assembly : 1 688 901 019 Opening : 207...210 pressure, bar 1st version rpm : 500 Orifice plate Speed Aneroid pressure h: 700 diameter mm : 0.8 Del.quantity : 1 680 750 067 : 5.00 Test lines cm3 Spread Outside diameter x Wall thickness

: 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Del.quantity cm3/: 20.8...21.0 100 s: (20.5...21.3) 100 s: (0.9) rpm : 275.0 Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) 100 s: (1.2) Rack travel in mm : 16.60...18.20 FULL LOAD DELIV. AT FULL LOAD STOP : 208.0...210.0 1000 : (205.0...213.0) 1000 : (9.00) RATED SPEED 1st version Setting point: Speed rpm: 950 Rack travel in mm: 17.4 Testine: 1st ru. travel in: 10.50 Speed rpm : 1000...1015

x Length mm

2nd rack travel in: 4.50

Speed rpm : 1070...1100

4th rack travel in: 1250 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 8.0

Testing:

rpm : 200 Speed Minimum rack trave: 6.70

Speed rpm: 275

Rack travel in mm : 4.60...4.80 Rack travel in mm : 2.00

rpm : 330...370

TORQUE CONTROL

Dimension a mm : 0.58

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 12.70...12.80

2nd speed rpm : 950

Rack travel in m: 11.40...11.50

3rd speed rpm : 675

Rack travel in m: 12.40...12.60 4th speed rpm : 810 Rack travel in m: 11.70...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 12.70...12.80

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 360

Rack travel in m: 12.70...12.80

ord pressure hPa : 140

Rack travel in m: 10.30...10.70

START CUT-OUT

1/min : 195 (215) Speed

FUE' DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

8peed rpm ; 950

L28

Del.quantity cm3/ : 190.0...194.0

1000 s: (187.0...197.0)

Ameroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 119.0...121.0 1000 s: (116.0...124.0)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...180.0 1000 s: (156.0...184.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 17.0...23.0

1000 s: (14.0...26.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 11.5° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks : 1- 2- 6- 3- 4- 5-7- 8 Firing order : SSC 13,7 a Test sheet Edition : 30.05.88 Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. : 0 402 048 706 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES8P120A520/4RS3211 BASIC SETTING : 0 412 028 706 EP type number rpm: 1250 1st speed Governor Governor design. : RQV300...1250PA639-1 Rack travel in mm : 13.30...13.40 Governer no. : 0 421 813 458 Customer-spec. information Del.quantity cm3/: 19.9...20.1 : SSCM Customer 100 s: (19.6...20.4) Engine : UD 18-V18 Spread cm3 : 0.5 : 394.0 1st version kW Rated speed : 2500 100 s: (0.9) rpm : 300.0 TEST BENCH REQUIREMENTS 2nd speed Rack travel in mm: 8.1...8.3 Del.quantity cm3/ : 2.0...2.6 Test oil 100 s: (1.7...2.9) cm3 : 0.8 inlet temp. OC : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzle holder GUIDE SLEEVE TRAVEL assembly : 1 688 901 019 1st speed rpm : 300 : 1.30...1.50 travel mm rpm : 1000 Opening 2nd speed : 207...210 : 5.70...6.00 pressure, bar travel mm rpm : 1250 3rd speed : 7.80...8.00 Orifice plate travel mm diameter mm : 0,8 GUIDE SLEEVE POSITION rpm : 1305 Test lines : 1 680 750 067 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness : 6.00X1.50X1000 1st version x Length mm rpm : 1250 Speed : 199.0...201.0 (A) Injection pump setting values Del.quantity 1000 : (196.0...204.0) Insp. values in parentheses cm3 : 5.00 Set equal delivery quant. Spread 1000 : (9.00) per values BEGINNING OF DELIVERY RATED SPEED Test pressure, bar: 25...27

1st version

Control lever position degrees: 59...67

Testing:

1st rack travel in: 12.30 rpm : 1290...1300 Speed

2nd rack travel in: 4.00 Speed rpm : 1415...1445

4th rack travel in: 1550 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 13...21

Testing:

rpm : 100 Speed Minimum rack trave: 9.70

Speed rpm: 300 Rack travel in mm: 8.10...8.30

Rack travel in mm : 2.00

CONSTANT REGULATION

rpm : 350...460 Speed

START CUT-OUT

Speed 1/min: 220 (240)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 1290...1300

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : VAL 7.2 a : 19.05.88 Test sheet Edition Replaces : 9.3.87 : ISO-4113 Test oil Combination no. : 0 402 076 056 Injection pump Pump designation : PES6P110A320RS505 EP type number : 0 412 016 072 Governor Governor design. : RSV325...1150P0A522 Governer no. : 0 421 833 242 Customer-spec. information Customer : VALMET Engine : 612 DSJ 1st version kW : 165.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.00...3.10

Rack travel in mm : 9,00...12.00

: (2.95...3.15)

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 700 1st speed Rack trave! in mm : 12.00...12.10 Del.quantity cm3/: 13.8...14.1 100 s: (13.5...14.3) cm3 : 0.4Spread 100 s: (0.7) 2nd speed rpm : 325.0 Rack travel in mm: 7.1...7.3 Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8) cm3 : 0.3 Spread 100 s: (0.6) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure h: 700 Del.quantity : 138.0...141.0 1000 : (135.5...143.5) cm3 : 4.00 1000 : (7.50) Spread RATED SPEED 1st version Control lever position degrees: 36...44 Testing: 1st rack travel in: 11.00 Speed rpm: 1190...1200 2nd rack travel in: 4.00

: 1-5- 3-6-2-4

Firing order

M₀3

Prestroke mm

Speed rpm : 1290...1310 4th rack travel in: 1460

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 6.7

Testing:

rpm : 100 Speed Minimum rack trave: 8.60 rpm : 325 Speed

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00 rpm : 460...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.00...12.10

2nd speed rpm : 1150

Rack travel in m: 11.90...12.10

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed Pressure

Rack travel mm : 12.00...12.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.50

2nd pressure hPa : 400

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

ist version

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 102.0...105.0

1000 s: (99.5...107.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

MO4

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 200.0...220.0 1000 s: (195.0...224.0)

LOW IDLE

Speed rpm : 325 Rack travel in mm : 7.10...7.30 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.00 1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 o 3 : 11.03.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 717

Injection pump

Pump designation : PES6P120A820LS3095-1

EP type number : 0 412 026 715

Governor

Governor design. : RSV350...750P0A487-4

Governer no. : 0 421 833 265

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M407A Engine

1st version kW : 169.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

; 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant,

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 9.00...12.00

: 6- 2- 4- 1- 5- 3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 730 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

cm3 : 0.5Spread

100 s: (0.8)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 3.0...4.0

100 s: (-)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 730 Speed

: 196.0...198.0 Del.quantity

1000 : (193.0...201.0)

cm3 : 5.00Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 29...37

Testing:

1st rack travel in: 11.40 Speed rpm: 750...755

2nd rack travel in: 4.00 Speed rpm : 776...789

4th rack travel in: 900 Speed rpm : 0.30...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm: 350
Rack travel in mm: 5.8
Speed rpm: 350
Rack travel in mm: 5.70...5.90

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40 peed rpm : 750...755 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 170.0...190.0 1000 s: (166.0...194.0)

Remarks:

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Firing order Test sheet : MB 11,7 e : 16.05.88 Edition Replaces : 12.9.86 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 402 076 719 Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131-1 EP type number : 0 412 016 717 BASIC SETTING Governor Governor design.: RSV350...750P0A517 1st speed rpm : 700 Governer no. : 0 421 833 215 Customer-spec. information : DAIMLER-BENZ Customer : 0M427 Engine Spread cm3 : 0.4 1st version kW : 142.0 Rated speed : 1500 TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Test oil inlet temp. OC : 38...42 cm3 : 0.4 100 s: (0.7) Overflow valve Spread : 1 417 413 025 Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Overflow rpm : 800 quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Click setting x : ? Opening pressure, bar : 172...175 1st version rpm : 700 Test lines : 1 680 750 015 Speed Del.quantity Outside diameter cm3 x Wall thickness : 4.00 Spread : 6.00x1.50x600 x Length mm (A) Injection pump setting values RATED SPEED

Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 : 0-60-120-180-240-300 : 0.50 (0.75)

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 13.6...13.8

100 s: (13.3...14.1)

100 s: (0.8)

Rack travel in mm : 6.9...7.1 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

FULL LOAD DELIV. AT FULL LOAD STOP

: 136.0...138.0 1000 : (133.0...141.0)

1000 : (8.00)

1st version Control lever

position degrees: 24...32

Testina:

1st rack travel in: 11.20

rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm : 775...788 4th rack travel in: 900

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.0

Testing:

rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm : 350 Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

rpm : 360...400 Speed SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 740...750

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

Observe VDT-I-420/120 APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.55...3.65 Prestroke mm : (3.50...3.70) Rack travel in mm : 10.50...10.50 Note remarks Firing order : 1-5-3-6-2-4 : DEE 7,6 y 1 Test sheet Edition : 15.06.88 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 402 076 722 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS3203 : 0 412 026 728 BASIC SETTING EP type number Governor Governor design. : RSV400...1100P2A534 Governer no. : 0 421 833 275 rpm: 1100 1st speed Governer no. Rack travel in mm : 11.60...11.70 Customer-spec. information : JOHN DEERE Del.quantity cm3/: 14.8...15.0 Customer : 6466 HF-050 100 s: (14.5...15.2) Engine 1st version kW : 194.0 Spread cm3 : 0.42nd version kW : 2200 100 s: (0.7) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Rack travel in mm: 4.8...5.0 Test oil inlet temp. OC Del.quantity cm3/: 1.8...2.3 : 38...42 100 s: (1.6...2.6) Overflow valve cm3 : 0.4Spread : 1 457 413 010 100 s: (0.7) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -3
Speed rpm: 800
Rack travel in mm: 0.30...0.70 Test nozzle holder ; 1 688 901 101 assembly Opening : 207...210 pressure, bar Governor spring pre-tension Click setting x :? Orifice plate diameter mm FULL LOAD DELIV. AT FULL LOAD STOP : 0,6 1st version Test lines : 1 680 750 008 rpm : 1100 Speed Aneroid pressure h: 1200 Del.quantity : 148.0...150.0 1000 : (145.5...152.5) Outside diameter x Wall thickness cm3 : 4.00 : 6.00x2.00x600 x Length mm Spread 1000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. 1st version per values Control lever BEGINNING OF DELIVERY position degrees: 45...53 Test pressure, bar: 27...29

Testing:

1st rack travel in: 10.70 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1205...1215 3rd rack travel in: 4.00 4th rack travel in: 1300 : 0.30...1.40 Speed rpm LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 4.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 4.80...5.00 Rack travel in mm : 2.00 : 535...595 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11,60...11.70 2nd speed rpm : 750 Rack travel in m: 12.50...12.70 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure Rack travel mm : 9.70...9.90 Measurement 1/min : 500 Speed %st pressure hPa : 605 Rack travel in m: 10.50...10.60 2nd pressure hPa : 820 Rack travel in m: 11.70...12.10 3rd pressure hPa : 1200 Rack travel in m: 12.60...12.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 750 Speed Del.quantity cm3/: 180.0...185.0 1000 s: (177.5...187.5) Aneroid pressure h: -

rpm : 500

Speed

M10

Del.quantity cm3/:-1000 s: (118.5...128.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70 Speed rpm : 1145...1155

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del.quantity cm3/: 18.5...23.5
1000 s: (16.0...26.0)
Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32035

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer.
Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 y : 15.06.88 Edition Réplaces Test oil : ISO-4113 Combination no. : 0 402 076 723 Injection pump Pump designation : PES6P120A720RS3203 : 0 412 026 728 EP type number Governor Governor design. : RSV400...1100P2A534-: 0 421 833 276 Governer no. Customer-spec. information : JOHN DEERE Customer : 6466 AF-050 Engine 1st version kW : 180.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm ; 0,6 Test lines ; 1 680 750 008 Outside diameter

x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 3.55...3.65 Prestroke mm : (3.50...3.70)
Rack travel in mm : 10.50...10.50
Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 14.2...14.4

100 s: (13.9...14.6)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 400.0 2nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.7...2.2 100 s: (1.5...2.8)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm ; 1100 Speed Aneroid pressure h: 900

Del.quantity : 142.0...146.5)

: 4.00 cm3 Spread 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing: 1st rack travel in: 10.20 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1200...1210 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 4.3 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 rpm : 535...595 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.20...11.30 2nd speed rpm : 700 Rack travel in m: 12.40...12.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : 900 Pressure : 12.40...12.60 Rack travel mm Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 10.00...10.20 2nd pressure hPa : 540 Rack travel in m: 10.60...10.70 3rd pressure hPa : 740 Rack travel in m: 11.80...12.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900

rpm_ : 700

Del.quantity cm3/: 181.0...185.0 1000 s: (178.0...188.0)

rpm : 500

Aneroid pressure h: -

Speed

Speed

M12

Del.quantity cm3/:-1000 s: (127.0...137.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.20 rpm : 1145...1155 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 4.00 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 20.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...28.0) cm3 : 4.50 Spread 1000 s: (7.50) Remarks: : JOHN DEERE # RE32033 Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer. Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 11,7 d 2 Test sheet Edition : 07.03.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 725

Injection pump

Pump designation : PES6P110A820LS3131-1

EP type number : 0 412 016 717

Governor

Governor design.: RSV350..1050P0A487-5

Governer no. : 0 421 833 285

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447

1st version kW : 177.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 : (4.25...4.45) Prestroke mm

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1030

Rack travel in mm : 12.50...112.00

Del.quantity cm3/: 15.0...15.2

100 s: (14.7...15.4)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.3

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed

: 150.0...152.0 Del.quantity 1000 : (147.5...154.5)

: 4.00 cm3 Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 11.50

```
Speed
              rpm : 1075...1085
2nd rack travel in: 4.00
              rpm : 1130...1160
  Speed
4th rack travel in: 1350
              rpm : 0.00...1.40
  Speed
LOW IDLE 1
Control lever
 position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 350 Rack travel in mm : 7.1
Testing:
                     : 100
Speed
              rpm
Minimum rack trave: 19.50
Speed rpm: 350
Rack travel in mm: 7.00...7.30
Rack travel in mm: 2.00
                   : 400...440
Speed
              rpm
SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00
FUEL DELIVERY CHARACTERISTICS
1st version
Speed rpm : 600
Del.quantity cm3/ : 133.0...137.0
              1000 s: (130.0...140.0)
Spread
               cm3 : 6.00
              1000 s: (9.00)
BREAKAWAY
1st version
1mm rack travel less than
 full load rack tr: 11.50
             rpm : 1075...1085
Speed
STARTING FUEL DELIVERY
Speed    rpm : 100
bel.quantity cm3/ : 130.0...150.0
    1000 s: (126.0...154.0)
LOW IDLE
                   : 350
Speed
              rpm
Rack travel in mm : 7.00...7.30
Del.quantity cm3/ : 14.0...20.0
              1000 s: (11.0...23.0)
cm3 : 4.50
Spread
              1000 s: (7,00)
Remarks:
```

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : DEE 10,1 f Phasing : 0-60-120-180-240-300 Edition : 15.06.88 Tolerance + - D : 0.50 (0.75) Replaces : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 0 402 076 726 BASIC SETTING Injection pump Pump designation : PES6P110A720RS3209 1st speed rpm : 1050 EP type number : 0 412 016 722 Rack trave! in mm : 11.10...11.20 Governor Governor design. : RSV400...1050P0A537 Governer no. : 0 421 833 287 Del.quantity cm3/: 16.5...16.7 100 s: (16.2...16.9) Customer-spec. information Customer : JOHN DEERE Spread cm3 : 0.4.-----Engine : 6619 A 100 s: (0.7) 1st version kW : 168.0 rpm : 400.0 Rated speed : 2100 2nd speed Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.6...2.1 TEST BENCH REQUIREMENTS 100 s: (1.3...2.3) cm3 : 0.4 Test oil Spread inlet temp. OC 100 s: (0.7) : 38...42 GUIDE SLEEVE POSITION Overflow valve : 1 457 413 010 Control-lever position Degree: -3 Inlet press., bar : 1.50 rpm : 800 Rack travel in mm : 0.30...0.70 Test nozzle holder assembly : 0 681 343 009 Governor spring pre-tension Click setting x : ? Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Test lines : 1 680 750 015 rpm : 1050 Speed : 165.0...167.0 Del.quantity 1000 : (162.5...169.5) Outside diameter cm3 : 4.00 x Wall thickness Spread 1000 : (7.50) : 6.00x3.00x600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values ____ position degrees: 40...48 BEGINNING OF DELIVERY Test pressure, bar: 27...29 Testing: 1st rack travel in: 10.10 Prestroke mm : 3.45...3.55 Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1145...1155

Speed

: (3.40...3.60)

Rack travel in mm : 10.50...10.50

3rd rack travel in: 4.00 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 20...28 Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00

Speed rpm : 505...565

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.10...11.20 2nd speed rpm : 700 Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm

Del.quantity cm3/: 177.5...182.5 1000 s: (175.0...185.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

; 100 Speed rpm

Del.quantity cm3/: 175.0...195.0 1000 s: (170.0...200.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 16.0...21.0 1000 s: (13.5...23.5)

M16

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE33898

Adjustment without torque-control spring retainer with 1 mm less Starting/full-load transition speed from holding magnet = 450 1/min. ntrol pring retainer. Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00 Note remarks : 1- 5- 4- 8- 6- 3-7- 2 Firing order Test sheet : STE 12,0 c : 16.05.88 Edition Replaces : 13.5.87 Test oil : ISO-4113 : 0-45-90-135-180-225-Phasing Combination no. : 0 402 638 801 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P12CA12OLS7127 Time to cyl. no. : 1 EP type number : 0 412 628 817 BASIC SETTING Governor Governor design. : RQ300/1100PA134-2 Governer no. : 0 421 801 364 1st speed rpm : 1100 Customer-spec. information Rack travel in mm : 11.50...11.60 : STEYR Customer Del.quantity cm3/: 17.6...17.8 : WD 815.66 Engine 100 s: (17.3...18.1) 1st version kW : 277.0 : 2200 Spread cm3 : 0.5Rated speed TEST BENCH REQUIREMENTS 100 s: (0.9) rpm : 300.0 Test oil 2nd speed inlet temp. OC : 38...42 Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.4...2.0 Overflow valve 100 s: (1.1...2.3) : 1 417 413 025 cm3 : 0.8 Spread 100 s: (1.2) Inlet press., bar : 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 019 Degree: -1 assembly rpm : 600 Rack travel in mm : 15.60...16.40 Opening : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,8 1st version rpm : 1100 Speed Aneroid pressure h: 1200 Del.quantity : 176.0...178.0 1000 : (173.0...181.0) Test lines : 1 680 750 067 cm3 : 5.00 Outside diameter Spread 1000 : (9.00) x Wall thickness : 6.00X1.50X1000 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. per values Setting point: Speed rpm : 600 Rack travel in mm : 16.0 BEGINNING OF DELIVERY

Testing:

Test pressure, bar: 25...27

1st rack travel in: 10.50 Speed rpm : 1145...1160 2nd rack travel in: 4.00

Speed rpm: 1210...1240 4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm : 6.4

Testing:

rpm : 100 Speed Minimum rack trave: 7.80 rpm : 300

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

rpm : 400...440 Speed

TORQUE CONTROL

Dimension a mm : 0.25

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.50...11.60
2nd speed rpm : 700
Rack travel in m: 12.00...12.10

3rd speed rpm : 1000

Rack travel in m: 11.60...11.80

4th speed rpm : 850

Rack travel in m: 11.80...12.10

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 1200 Pressure

Rack travel mm : 12.00...12.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.60

2nd pressure hPa : 760

Rack travel in m; 11.50...11.60

3rd pressure hPa : 470

Rack travel in m: 10.00...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 700 Speed

Del.quantity cm3/: 183.0...191.0

1000 s: (181.0...193.0)

M18

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 122.0...126.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 230.0...260.0

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA 11,0 j1 : 07.03.88 Edition : 13.5.87 Replaces : ISO-4113 Test oil Combination no. : 0 402 646 821 Injection pump Pump designation : PE6P120A720RS7104 : 0 412 626 807 EP type number Governor Governor design. : RQV200...1000PA725 : 0 421 813 457 Governer no. Customer-spec. information : SAAB-SCANIA Customer Engine : DSC 11 01 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60 : (4.45...4.65) Rack travel in mm: 6.00...8.00

: 1-5- 3- 6- 2- 4 firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00...14.70 & maximum rack tra: 21.00

Difference OCS : 1.85...2.55

BASIC SETTING

rom: 700 1st speed

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 21.0...21.2

100 s: (20.7...21.5)

Spread cm3 : 0.7

100 s: (1.0)

rpm : 225.0 2nd speed Rack travel in mm : 4.4...4.6 Del.quantity cm3/: 1.4...1.8 100 s: (-)

cm3 : 0.3Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 225 1st speed

: 1.20...1.60 travel mm rpm : 350 2nd speed

travel mm : 2.40...3.00

3rd speed rpm : 650

: 4.50...5.10 travel mm

: 1045 4th speed rpm

: 8.40...8.60 travel mm

: 1165 5th speed rpm

travel mm : 10.00...10.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1050 Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 700 Speed Aneroid pressure h: 900 Del.quantity : 210.0...215.0)

1000 : (207.0...215.0)

Spread cm3 : 7.00

1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 13.70 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 5...13 Testing: rpm : 100 Speed Minimum rack trave: 5.90 Speed rpm : 225 Rack travel in mm : 4.40...4.60 Rack travel in mm : 2.00 rpm : 310...370 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 900 Pressure : 14.70...14.80 Rack travel mm Measurement 1/min : 500 Speed ist pressure hPa : -Rack travel in m: 11.80...11.90 2nd pressure hPa : 410 Rack travel in m: 14.00...14.10 3rd pressure hPa : 290 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1000 Speed

M20

Del.quantity cm3/: 201.0...209.0 1000 s: (199.0...211.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 164.0...168.0 1000 s: (162.0...170.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...290.0 Rack travel in mm : 20.00...21.00 LOW IDLE rpm : 225 Speed Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 14.0...18.0 1000 s: (-) Spread cm3: 3.00 1000 s: (6.00) Remarks: Delivery-valve spring pre-tension

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on May 17, 1984
Start of delivery - engine: 22° before TDC at control-rod travel = 6.0...
8.0 mm
Firing sequence of engine: 1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 t : 13.06.88 Edition Replaces : 9.10.87 : ISO-4113 Test oil

Combination no. : 0 402 646 838

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQ300/1050PA762-4 Governer no. : 0 421 801 390

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M441 LA Engine

: 240.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00

: 6- 3- 5- 2- 4- 1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 21.4...21.6

100 s: (21.1...21.9)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.7...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

214.0...216.0 1000 : (211.0...219.0) Del.quantity

cm3 : 5.00

Spread 1000 ; (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.70 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm: 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.8 Testing: Speed rpm : 200 Minimum rack trave: 7.70 Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00 rpm : 370...410 Speed TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 1050 Rack travel in m: 14.70...14.90 3rd speed rpm : 800 Rack travel in m: 15.10...15.30 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed COM Pressure hPa : 900 Rack travel mm : 13.90...14.10 Measurement 1/min : 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.70...12.90 3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 4th pressure hPa : 1150 Rack travel in m: 14.40...14.60 5th pressure hPa : -Rack travel in m: 9.50...9.80

1st version Aneroid pressure h: 1350 rpm : 1050 Speed Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1350 Speed rpm : 800 Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 Speed rpm : 1095...1110 STARTING FUEL DELIVERY Speed rpm : 100

Del.quantity cm3/: 205.0...225.0

Speed

START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet : MB 11,0 t 2 Edition : 25.03.88 : 27.3.87 Replaces Test oil : ISO~4113

Combination no. : 0 402 646 843

Injection pump Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQV300...1050PA797-2

Governer no. : 0 421 813 614

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M441 LA

1st version kW : 240.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.7...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.20...1.40

rpm : 600 2nd spend

: 4.90...5.10 travel mm

: 1075 3rd speed rpm

: 7.40...7.60 travel mm

rpm : 1100 4th speed

: 8.00...8.40 travel mm

rpm : 1150 5th speed

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 900 Del.quantity : 211.0...216.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 13.80 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 15...23 Testing: Speed rpm Minimum rack trave: 7.70 : 300 Speed rpm Rack travel in mm : 5.50...5.80 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL : 0.30 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.60...14.80 3rd speed rpm : 800 Rack travel in m: 15.90...15.10 4th speed rpm : 700 Aneroid/Altitude Compensator Test ist version Setting ; 600 Speed rpm Pressure hPa : 900 : 13.90...14.10 Rack travel mm Measurement Speed 1/min: 600 ist pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.70...12.90

3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 4th pressure hPa : 1150 Rack travel in m: 14.40...14.60 5th pressure hPa : -Rack travel in m: 9.00...9.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1350 Speed rpm : 1050 Del.quantity cm3/ : 236.0...239.0 1000 s: (233.0...242.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1350 rpm : 800 Speed Del.quantity cm3/: 242.0...246.0 1000 s: (239.0...249.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 1095...1110 Speed STARTING FUEL DELIVERY

Remarks:

:

M25

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : UNI 13,8 e Test sheet : 26.02.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 646 859 Injection pump Pump designation : PE6P130A720RS7153 EP type number : 0 412 636 809 Governor Governor design.: RQV300...950PA883 Governer no. : 0 421 813 690 Customer-spec. information : IVECO-UNIC Customer : 8210,42,300 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate : 0,8 diameter mm Test lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm ; 8.00x3.00x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 950 Rack trave! in mm : 12.80...12.90 Del.quantity cm3/: 29.7...30.0 100 s: (29.3...30.3) Spread cm3 : 0.6100 s: (1.0) rpm : 300.0 2nd speed Rack travel in mm : 2.9...3.1 Del.quantity cm3/: 1.9...2.5 100 s: (1.5...2.9) cm3 : 1.0 Spread 100 s: (1.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.10...1.50 2nd speed rpm : 450 travel mm : 2.80...3.40 3rd speed rpm : 700 travel mm : 5.10...5.50 4th speed rpm : 950 : 7.10...7.30 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1000 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 950 Speed Aneroid pressure h: 900 Del.quantity : 297.0...300.0 1000 : (293.5...303.5) cm3 : 6.00Spread 1000 : (10.00)

Firing order

: 1-5-3-6-2-4

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 5.00...5.10

: (4.95...5.15)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 11.80

Speed rpm : 990...1000

2nd rack travel in: 4.00 Speed rpm: 1070...1100 4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 3...11

rpm : 300 Speed

Rack travel in mm : 2.90...3.10

CONSTANT REGULATION

rpm : 310...430 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : 900

Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.30...8.50

2nd pressure hPa : 500

Rack travel in m: 11.80...11.90

3rd pressure hPa : 380

Rack travel in m: 9.20...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Amenoid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 157.0...160.0

1000 s: (153.5...163.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 990...1000 Speed

M27

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

rpm : 100 Speed

LOW IDLE

Speed rpm: 300 Rack travel in mm: 2.90...3.10 Del.quantity cm3/: 19.0...25.0 1000 s: (15.0...29.0) Spread cm3: 10.00

1000 s: (14.00)

Remarks:

week electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : SCA 14.2 a1 : 26.02.88 Test sheet Edition : 6.10.86 Replaces : ISU-4113 Test oil Combination no. : 0 402 648 802 Injection pump Pump designation : PE8P120A920/4LS7002S EP type number : 0 412 628 800 Governor Governor design. : RQV200...1050PA547 Governer no. : 0 421 813 293 Customer-spec. information Customer : SAAB-SCANIA : DS14 07 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0.8 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 5.00...5.10 Prestroke mm

; (4.95...5,15)

Rack travel in mm : 9.00...12.00

: 1- 2- 7- 3- 4- 5-Firing order 6-8 : 0-45-90-135-180-225-Phasing 270-315 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 700 1st speed Rack travel in mm : 13.20...13.30 Del.quantity cm3/: 18.7...18.9 100 s: (18.4...19.2) cm3 : 0.6Spread 100 s: (0.9) rpm : 225.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.0...1.4 100 s: (-) cm3 : 0.3 Spread 100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 225 : 1.20...1.40 travel mm rpm : 280 2nd speed : 1.80...2.10 travel mm 3rd speed rpm : 350 : 2.40...2.80 travel mm rpm : 1090 4th speed travel mm : 8.40...8.60 rpm : 1200 5th speed : 9.80...10.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1100 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure h: 900 Del.quantity : 187.0...189.0 1000 : (184.0...192.0)

cm3 : 6.00Spread 1000 : (9,00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 12.20 rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1185...1215 4th rack travel in: 1300 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.40

Speed rpm : 225

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00 Speed rpm : 340...400

Aneroid/Altitude Compensator Test

1st version

Setting

; 500 Speed rom hPa : 900 Pressure

Rack travel mm : 13.20...13.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m; 11.30,...11.40

2nd pressure hPa : 350

Rack travel in m: 12.80...12.90 3rd pressure hPa : 230

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

ist version

Aneroid pressure h: 900 rpm : 1000 Speed

Del.quantity cm3/: 184.0...192.0 1000 s: (182.0...194.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 137.0...141.0 1000 s: (135.0...143.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...290.0
Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 225 Speed

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 10.0...14.0

cm3 : 3.00 Spread

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on Aug. 19, 1983 Engine start of delivery: 18° BTDC

Engine firing sequence: 1-5-4-2-6-3-7-8

Note remarks

: MB 14,7 a 1 Test sheet : 22.04.88 Edition : 18.9.87 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 812

Injection pump

Pump designation : PE8P12OA320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQ300/1050PA717 Governer no. : 0 421 801 258

Customer-spec, information

: DAIMLER-BENZ Customer

: 0M442 LA Engine

1st version kW : 320.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.1...6.7 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 680

Del.quantity : 220.0...225.0)

1000 : (217.0...225.0)

1000 : (217.0...225.0)

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed

NO3

Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.40 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 : 1160...1190 Speed rpm 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.4 Testing: rpm : 200 Speed Minimum rack trave: 8.00 300 Speed rpm Rack travel in mm : 6.10...6.70 Rack travel in mm: 2.00 : 380...420 Speed rpm TORQUE CONTROL Dimension a mm : 0.35 2nd speed rpm : 1050 Rack travel in m: 15.20...15.40 3rd speed rpm : 850 Rack travel in m: 15.80...16.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 680 Pressure Rack travel mm : 14.70...14.90 Measurement 1/min: 600 Speed 1st pressure hPa : 310 Rack travel in m: 12,10...12,30 2nd pressure hPa : 470 Rack travel in m: 13.70...13.90 3rd pressure hPa : 820 Rack travel in m: 14.90...15.10 4th pressure hPa : 1100 Rack travel in m: 15.90...16.00 5th pressure hPa : -Tack travel in m: 11.40...11.50 START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1150 : 1050 Speed rpm Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1150 Speed rpm : 850 Del.quantity cm3/: 247.0...251.0 1000 s: (244.0...254.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.40 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Remarks: :

Speed

Note remarks

Test sheet : MB 14,7 b Edition : 25.03.88 : 18.9.87 Replaces : ISO-4113 Test oil

: 0 402 648 824 Combination no.

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQV300..1050PA797

Governer no. : 0 421 813 532

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 LA

: 320.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) injection pump setting values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

: 8 Time to cyl. no.

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 6.2...6.6 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.20...1.40

rpm : 600 2nd speed

: 4.90...5.10 travel mm

rpm : 1075 3rd speed

: 7.40...7.60 travel mm

rpm : 1100 4th speed

travel mm : 8.00...8.20

rpm : 1150 5th speed

: 9.00...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: =1 rpm : 1125

Speed

Rack travel in me : 16,50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 680 : 220.0...222.0 Del.quantity 1000 : (217.0...225.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 14.20 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 Speed rpm: 0.00...1.50 LOW IDLE 1 Control lever position degrees: 15...23 Testing: rpm : 100 Speed Minimum rack trave: 7.90 rpm : 300 Speed Rack travel in mm : 6.20...6.40 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 0.40 2nd speed rpm : 1050 Rack travel in m: 15.20...15.40 3rd speed rpm : 850 Rack travel in m: 15.80...16.10 Aneroid/Altitude Compensator Test ist version Setting : 600 Speed rpm Pressure hPa : 680 : 14.70...14.90 Rack travel mm Measurement Speed 1/min : 600 1st pressure hPa : 310 Rack travel in m: 12.10...12.30

3rd pressure hPa : 820 Rack travel in m: 14.90...15.00 4th pressure hPa : 1100 Rack travel in m: 15.90...16.00 5th pressure hPa : -Rack travel in m: 11.40...11.50 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1150 rpm : 1050 Speed Del.quantity cm3/: 228.0...234.0 1000 s: (225.0...237.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1150 : 850 Speed rpm Del.quantity cm3/: 247.0...251.0 1000 s: (244.0...254.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.20 rpm : 1095...1110 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) Remarks:

M06

2nd pressure hPa : 470

Rack travel in m: 13.70...13.90

Note remarks

Test sheet : MB 14,7 a10 Edition : 11.03.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 833

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design: : RQV300..1050PA866-3

Governer no. : 0 421 813 703

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 A Engine

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1,50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.6...6.0

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Spread cm3: 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed rpm : 600

: 4.90...5.10 travel mm

3rd speed rpm : 1100

travel mm : 8.00...8.50

4th speed rpm : 1170

: 9,20,..9,80 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1090

Speed Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1100 : 181.0...183.0 Del.quantity 1000 : (178.0...186.0) Cm3 : 5.00 Spread 1000 : (9,00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 7.30 : 300 Speed rom Rack travel in mm : 5.60...5.80 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm ; 1,60 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.80...12.90 2nd speed rpm : 750 Rack travel in m: 14.40...14.60 3rd speed rpm : 950 Rack travel in m: 13.50...13.60 4th speed rpm ; 830 Rack travel in m; 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting 8peed : 600 rom Pressure hPa : -: 11.20...11.50 Rack travel mm Measurement 1/min : 600 Speed

1st pressure hPa : 420

NO8

2nd pressure hPa : 600 Rack travel in m: 13.60...13.80 START CUT-OUT 1/min : 270 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 : 700 Speed rpm Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1100 rpm : 1050 Speed Del.quantity cm3/: 152.0...154.0 * 1000 s: (149.0...157.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 180.0...200.0 1000 s; (176.0...204.0) Remarks: * = Set at reduced-delivery stop.

Rack travel in m: 11.90...12.10

Note remarks

Test sheet : MB 14,7 i Edition : 22.04.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 648 843

Injection pump

Pump designation : PE8P120A320LS7815 EP type number : 0 412 628 827

Governor

Governor design. : RQV350..1050PA870-2

Governer no. : 0 421 813 687

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442LA

1st version kW : 350.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzie holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.09

Firing order : 8- 7- 2- 6- 3- 5-

4- 1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 15.10...15.20

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

Spread cm3:0.5

100 st (0.9)

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...5.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread cm3 : 0.6 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.90...2.10

2nd speed rpm : 700

travel mm : 4.10...4.50

3rd speed rpm : 1100

travel mm : 7.60...8.00

4th speed rpm : 1200

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Rack travel in m: 13.10...13.30 Speed rpm : 1050 3rd pressure hPa : 1260 Rack travel in m: 14.70...14.90 Aneroid pressure h: 1700 Del.quantity : 254.0...256.0 1000 : (251.0...259.0) 4th pressure hPa : 1400 cm3 : 5.00 Rack travel in m: 15.10...15.30 Spread 1000 : (9,00) 5th pressure hPa : -Rack travel in m: 8.80...9.20 RATED SPEED START CUT-OUT 1st version Control lever 1/min : 270 (290) Speed position degrees: 61...69 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 14.10 rpm : 1090...1100 1st version Speed 2nd rack travel in: 4.00 Aneroid pressure h: 1000 rpm : 600 Speed rpm : 1190...1220 Speed Del.quantity cm3/: 239.0...241.0 1000 s: (236.0...244.0) Spread cm3 : 8.00 4th rack travel in: 1300 Speed rpm : 0.00...1.00 1000 s: (12.0) LOW IDLE 1 Aneroid pressure h: 1700 Control lever rpm : 900 position degrees: 9...17 Speed Del.quantity cm3/: 264.0...267.0 1000 s: (261.0...270.0) Testing: cm3 : 8.00 Speed rpm : 200 Spread 1000 s: (12.0) Aneroid pressure h: 700 Minimum rack trave: 7.70 rpm : 350 Speed rpm : 1050
Del.quantity cm3/ : 194.0...196.0 * Rack travel in mm : 5.00...5.60 1000 s: (191.0...199.0) CONSTANT REGULATION rpm : 350...600 cm3 : 8.00Speed Spread 1000 s: (12.0) TORQUE CONTROL Aneroid pressure h: rpm : 500 Dimension a mm : 0.30 Speed Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 15.10...15.20 cm3 : 8.00 Spread 2nd speed rpm : 1000 1000 s: (-) Rack travel in m: 15.20...15.40 3rd speed rpm : 930 Rack travel in m: 15.40...15.50 BREAKAWAY Aneroid/Altitude 1st version 1mm rack travel less than Compensator Test full load rack tr: 14.10 rpm : 1090...1100 1st version Speed Setting ; 600 STARTING FUEL DELIVERY Speed Lbw Pressure hPa : 1000 Rack travel mm : 14.50...14.70 Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 Measurement 1000 s: (256.0...284.0) 1/min : 600 Speed 1st pressure hPa : 330 Remarks: Rack travel in m: 10.20...10.40 2nd pressure hPa : 600

* = Set at reduced-delivery stop. N11

Note remarks

Test sheet : MB 14,7 j : 08.06.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 844

Injection pump

Pump designation : PE8P120A320LS7816 EP type number : 0 412 628 829

Governor

Governor design: RQ300/1050PA717-2

Governer no.

: 0 421 801 439

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 LA Engine

: 353.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Cverflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h; 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

; 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

4- 1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

Spread cm3 : 0.6

100 s; (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

Del.quantity : 234.0...237.0 1000 : (231.0...240.0)

Spread

cm3 : 6.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed

Rack travel in mm: 20.0 1st version Aneroid pressure h: 1600 Testing: Speed rpm : 1050 Del.quantity cm3/ : 252.0...256.0 1st rack travel in: 13.40 Speed rpm : 1095...1110 2nd rack travel in: 4.00 1000 s: (249.0...259.0) cm3 : 8.00 Speed rpm : 1160...1190 Spread 4th rack travel in: 1300 1000 s: (12.0) Aneroid pressure h: 1600 Speed rpm : 0.00...1.50 : 800 Speed rpm Del.quantity cm3/: 263.0...267.0 LOW IDLE 1 Setting point w/out bumper spring 1000 s: (260.0...270.0) cm3 : 8.00 Speed rpm : 300 Spread Rack travel in mm: 6.2 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 145.0...147.0
1000 s: (142.0...150.0) Testing: rpm : 200 Speed Minimum rack trave: 7.80 rpm : 300 Spread cm3 : 8.00Speed Rack travel in mm : 5.90...6.50 1000 s: (12.0) Rack travel in mm : 2.00 Speed rpm : 380...420 BREAKAWAY TORQUE CONTROL Dimension a mm : 0.40 1st version 2nd speed rpm : 1050 1mm rack travel less than Rack travel in m: 14.40...14.60 3rd speed rpm : 800 full load rack tr: 13.40 rpm : 1095...1110 Rack travel in m: 14.90...15.10 Speed STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test rpm : 100 Speed Del.quantity cm3/: 240.0...260.0 1st version Setting 1000 s: (236.0...264.0) rpm : 600 Speed Pressure hPa : 900 Remarks: Rack travel mm : 13.60...13.80 Measurement Speed 1/min : 600 1st pressure hPa : 350 Rack travel in m: 11.10...11.30 2nd pressure hPa : 650 Rack travel in m: 12.80...13.00 3rd pressure hPa : 1350 Rack travel in m: 14.50...14.70 4th pressure hPa : 1500 Rack travel in m: 14.80...14.90 5th pressure hPa : -Rack travel in m: 9.90...10.20 START CUT-OUT 1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet : MB 14,7 k : 16.06.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 845

Injection pump

Pump designation : PE8P120A320LS7816 : 0 412 628 829 EP type number

Governor

Governor design. : RQV300..1050PA797-5

Governer no. : 0 421 813 702

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M442 LA Engine

: 353.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

; 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6 Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.40 travel mm

rpm : 800 2nd speed

: 5.80...6.10 travel mm

3rd speed rpm : 1120

travel mm : 8.20...8.80

rpm : 1180 4th speed

: 9.60...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900 : 234.0...237.0 Del.quantity 1000 : (231.0...240.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 13.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 18...26 Testing: : 200 Speed rpm Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL : 1.30 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.40...14.60 3rd speed rpm : 800 Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 900 : 13.60...13.80 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.10...11.30

4th pressure hPa : 1500 Rack travel in m: 14.80...14.90 5th pressure hPa : -Rack travel in m: 9.90...10.20 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/ : 252.0...256.0 1000 s: (249.0...259.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1600 rpm : 800 Speed Del.quantity cm3/ : 263.0...267.0 1000 s: (260.0...270.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

N15

2nd pressure hPa : 650

3rd pressure hPa : 1350

Rack travel in m: 12.90...13.00

Rack travel in m: 14.50...14.70

Note remarks

Test sheet : MB 14,7 m : 16.05.88 Edition

Replaces

Test oil

: ISO-4113

: 0 402 648 849 Combination no.

Injection pump

Pump designation : PE8P12OA320LS7810 : 0 412 628 819 EP type number

Governor

Governor design. : RQV300..1050PA797-7

Governer no. : 0 421 813 707

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 LA Engine

: 368.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min, 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6,00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 19.50...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 23.9...24.1

100 s: (23.6...24.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed rpm : 800

travel mm : 5.80...6.10

3rd speed rpm : 1120

: 8.20...8.80 travel mm

4th speed rpm : 1180

: 9.60...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900 : 239.0...241.0 Del quantity 1000 : (236.0...244.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 14.10 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 18...26 Testing: : 200 rpm Speed Minimum rack trave: 8.00 : 300 Speed rom Rack travel in mm : 5.80...6.10 CONSTANT REGULATION : 300...500 Speed rom TORQUE CONTROL : 0.25 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 15.10...15.30 ; 800 3rd speed rpm Rack travel in m: 13.30...15.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 900 : 14.30...14.50 Rack travel mm Measurement 1/min : 600 Speed

Rack travel in m: 8.70...8.90 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 1050 Del.quantity cm3/ : 257.0...260.0 1000 s: (254.0...263.0) cm3 : 8.00Spread 1000 s: (12.) Aneroid pressure h: 1500 Speed rpm : 800 Del.quantity cm3/: 265.0...269.0 1000 s: (262.0...272.0) cm3 : 8.00Spread 1000 s: (12.00 Speed rpm : 500 Del.quantity cm3/ : 133.0...135.0 1000 s: (130.0...138.0) cm3 : 8.00Spread 1000 s: (12.00 BREAKAWAY 1st version 1mm rack travel less than full lead rack tr: 14.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks:

4th pressure hPa : -

1st pressure hPa : 320

2nd pressure hPa : 620

3rd pressure hPa : 1100

Rack travel in m: 9.90...10.10

Rack travel in m: 13.00...13.20

Rack travel in m: 14.40...14.50

Note remarks

Test sheet : MB 21,9 y 2 : 13.06.88 Edition Replaces : 12.11.87 Test oil : ISO-4113

Combination no. : 0 402 670 805

Injection pump

Pump designation : PE12P120A320LS7807-2

EP type number : 0 412 620 812

Governor

Governor design. : RSV375..1050P0A535-1

Governer no. : 0 421 833 282

Customer-spec. information

: DAIMLER-BENZ Customer

: OM 444 LA Engine

1st version kW : 491.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6,00x1,50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 9.00...12.00

: 12- 1- 5- 9- 8- 3-Firing order

4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

rpm: 650 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 21.6...21.9

100 s: (21.3...22,2)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 375.0
Rack travel in mm : 5.5...5.8
Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed

Aneroid pressure h: 800

Del.quantity : 210.0...222.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever position degrees: 36...44 Testing: 1st rack travel in: 13.70 Speed rpm : 1070...1080 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1400 Speed rpm: 0.30...1.40 LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring rpm : 375 Rack travel in mm: 5.6 Testing: Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm: 375
Rack travel in mm: 5.50...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 14.70...14.90 2nd speed rpm : 925
Rack travel in m: 15.10...15.30
3rd speed rpm : 830
Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting ; 600 Speed rpm hPa : 800 Pressure : 14.70...14.90 Rack travel mm :leasurement 1/min : 600 Speed 1st pressure hPa : 350 Rack travel in m: 12.20...12.40 2nd pressure hPa : 550 Rack travel in m: 13.70...13.90 3rd pressure hPa : 1000 Rack travel in m: 15.00...15.20 4th pressure hPa : 1100 Rack travel in m: 15.40...15.60 5th pressure hPa : -Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1250 Speed rpm : 1030

Del.quantity cm3/: 221.0...223.0 1000 s: (218.0...226.0) Spread cm3 : 8.00

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1250

Speed rpm: 800 Del.quantity cm3/: 237.0...241.0 1000 s: (234.0...244.0)

Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0)

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.70 Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

;

Note remarks

: MB 21,9 y 3 Test sheet : 08.06.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 670 806

Injection pump

Pump designation : PE12P12OA32OLS7807-2

EP type number : 0 412 620 812

Governor

Governor design. : RSV350..1050P0A538

Governer no. : 0 421 833 300

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM 444 A

: 390.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6,00X1,50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 12- 1- 5- 9- 8- 3-

4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

rpm: 1030 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 17.2...17.4

100 s: (16.9...17.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed Aneroid pressure h: 900

: 172.0...174.0 Del.quantity

1000 : (169.0...177.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.40 Speed rpm : 1070...1080 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

røm : 350 Rack travel in mm: 5.7

Testing:

Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 350

Rack travel in mm : 5.60...5.80

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030

Rack travel in m: 12.40...12.50

2nd speed rpm : 950

Rack travel in m: 12.90...13.10 3rd speed rpm : 875

Rack travel in m: 13.40...13.60 4th speed rpm : 750

Rack travel in m: 13.90...14.10

Aneroid/Altitude Compensator Test

1st version

Setting

; 500 rpm Speed Pressure hPa : -

Sack travel mm : 10.50...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : 300

Rack travel in m: 11,30...11.50

2nd pressure hPa : 500

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 700 Speed

Del.quantity cm3/: 206.0...210.0 1000 s: (203.0...213.0)

cm3 : 8.00

Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 136.0...138.0
1000 s: (133.0...141.0)
Spread cm3: 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40

rpm : 1070...1080 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

Note remarks

Test sheet : MB 14,7 g 3 : 08.06.88 Edition : 7.12.87 Replaces : ISO-4113 Test oil

: 0 402 678 808 Combination no.

Injection pump

Pump designation : PE8P120A320L\$7801-2

EP type number : 0 412 628 825

Governor

Governor design. : RSV350...1050P0A535

Governer no. : 0 421 833 281

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442LA Engine

: 320.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35)

Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

Spread

rpm: 600 1st speed

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 21.5...21.8

100 s: (21.2...22.1)

cm3 : 0.5

,...

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 750

Del.quantity : 213.0...221.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 36...44 Testing: 1st rack travel in: 14.00 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1400 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 350 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 rpm : 360...420 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 15.00...15.20 2nd speed rpm : 850 Rack travel in m: 15.70...15.90 3rd speed rpm : 925 Rack travel in m: 15.40...15.60 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom Pressure hPa : 750 : 14.50...14.60 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : 400 Rack travel in m: 12.20...12.40 2nd pressure hPa : 550 Rack travel in m: 13.70...13.90 3rd pressure hPa : 950 Rack travel in m: 14.90...15.10 4th pressure hPa : 1050 Rack travel in m: 15.30...15.50 5th pressure hPa : -

Rack travel in m: 11.20...11.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1250 rpm : 1030 Speed Del.quantity cm3/: 230.0...232.0 1000 s: (227.0...235.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1250 Speed rpm : 850 Del.quantity cm3/: 242.0...245.0 1000 s: (239.0...248.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0) cm3 : 8.00 Spread 1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.00 rpm : 1070...1080 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: Observe VDT-I-420/120

0

Note remarks

Test sheet : MB 10,0 c 2 Edition : 29.04.88

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 745 801

Injection pump

Pump designation : PES5P120A720LS7101

EP type number

: 0 412 725 800

Governor

Governor design. : RQV300..1050PA759

Governer no. : 0 421 813 489

Customer-spec. information

: DAIMLER-BENZ Customer

Engine

: 0M429 LA

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...110

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2

Firing order

Phasing

: 0-72-144-216-288

Tolerance + - 0

: 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5

Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1,20,...1,40 travel mm

2nd speed rpm : 650

: 5.10...5.40 travel mm

rpm : 1100 3rd speed

travel mm : 7.90...8.30

rpm : 1180 4th speed

: 9.50...10.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1110 Speed

Rack travel in mm : 15.10...17.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 700

Del.quantity : 201.0...206.0)

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 12.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 14...22 Testing: : 200 Speed rpm Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 300...400 Speed Aneroid/Aititude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : -Rack travel mm : 12.00...12.30 Measurement 1/min : 500 Speed 1st pressure hPa : 240 Rack travel in m: 12.30...12.40 2nd pressure hPa : 350 Rack travel in m: 13.30...13.50 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 700 Speed rpm : 900 Del.quantity cm3/: 204.0...208.0 1000 s: (201.0...211.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 157.0...159.0 1000 s: (154.0...162.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 160.0...180.0 1000 s: (156.0...184.0)

:

Remarks:

N25

Speed

1st version

Aneroid pressure h: 700

rpm

; 600

Del, quantity cm3/; 197.0...201.0 1000 s: (194.0...204.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 10,0 c 1 : 03.04.87 Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 745 802 Injection pump Pump designation : PESSP120A720LS7101 EP type number : 0 412 725 800 Governor Governor design. : RQ300/1050PA690-1 Governer no. : 0 421 801 392 Customer-spec. information Customer : DAIMLER-BENZ : 0M429 LA Engine TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1,50 Over flow quantity min. 1/h: 100...110 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Test lines : 1 680 750 067 Outside diameter x Wall thickness Length mm : 6.00x1.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 5 BASIC SETTING 1st speed rpm : 1050 Rack trave! in mm : 12.50...12.60 Del.quantity cm3/: 17.9...18.1 100 s: (17.6...18.4) cm3 : 0.5 Spread 100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) cm3 : 0.8 Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 Aneroid pressure h: 700 Del.quantity : 1/9.0...184.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Setting point: rpm : 600 Rack travel in mm : 20.0 Testing: 1st rack travel in: 11.50 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1135...1175 Speed

Firing order

Phasing

: 1- 3- 5- 4- 2

: 0-72-144-216-288

per values ____

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 5.20...5.30

: (5.15...5.35)

BEGINNING OF DELIVERY

Prestroke mm

4th rack travel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300° Speed Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 7.70

Speed rpm : 300 Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00 Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : -

Rack travel mm : 12.00...12.30

Measurement

Speed 1/min: 500

1st pressure hPa : 240

Rack travel in m: 12.10...12.20 2nd pressure hPa : 350 Rack travel in m: 12.30...12.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 600

Del.quantity cm3/: 179.0...185.0 1000 s; (176.0...188.0)

cm3 : 8.00 Spread

1000 s; (12.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 157.0...159.0
1000 s: (154.0...162.0)
Spread cm3 : 8.00

1000 s; (12.0)

BREAKAWAY

1st version

N27

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 160.0...180.0 1000 s: (156.0...184.0)

Remarks:

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